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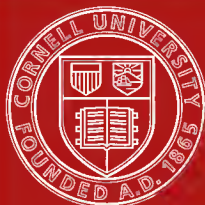
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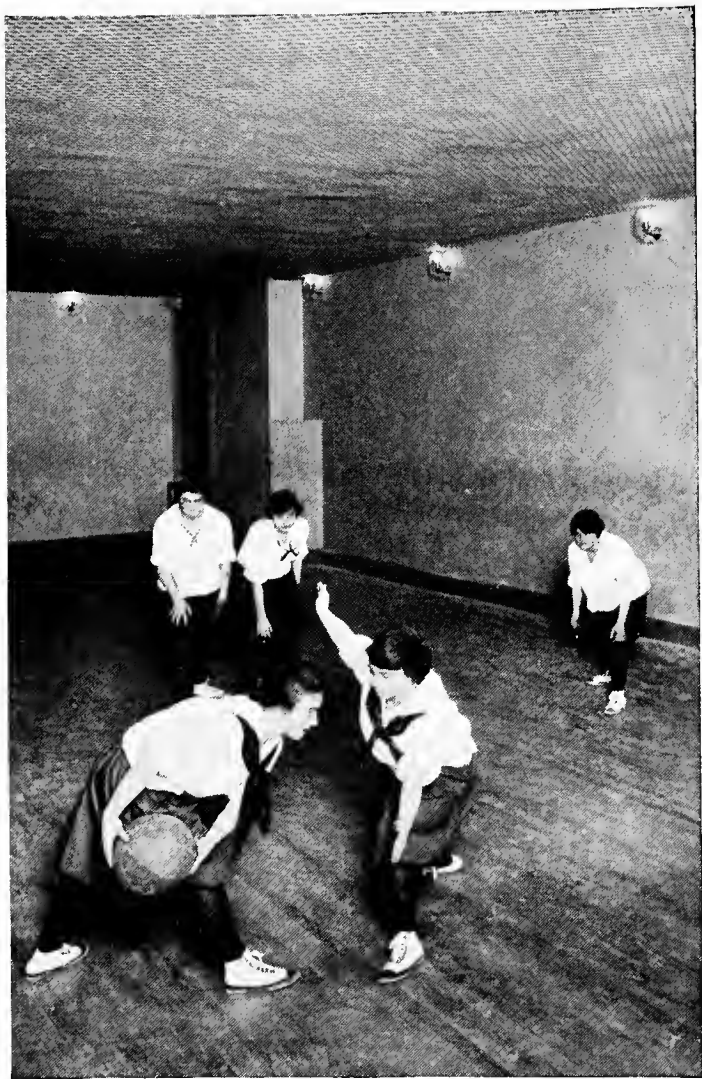
***COMPANION VOLUMES:***

**THE WAY TO GREATER PRODUCTION**

**THE MANAGEMENT AND THE WORKER**

**WORKING CONDITIONS, WAGES, AND PROFITS**





"All work and no play makes Jack a dull boy"—and under similar conditions, Jill is likely to do work not so good as she is capable of doing. That has been the experience of employers who provide recreational facilities for the men and women workers on their payrolls.

# WORKING CONDITIONS WAGES AND PROFITS

*By*

C. W. PRICE, ORVAL SIMPSON,  
DALE WOLF, CHARLES WOODWARD, F. J. MOSS,  
W. R. BASSET, AND OTHERS



**A. W. SHAW COMPANY**  
CHICAGO NEW YORK  
LONDON



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**PRINTED IN THE UNITED STATES OF AMERICA**

**T**HIS volume was prepared under the direction of the Bureau of Business Standards of the Shaw Publications. The material was drawn from the following sources: National Safety Council, Industrial Association of Cleveland, the Miller Lock Company, American Sash and Door Company, Miller, Franklin, Basset and Company, Jewell Electrical Instrument Company, and the American Optical Company.

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Advisors were drawn from the Editorial Advisory Board of **FACTORY**, the Magazine of Management, and include: F. F. Beall, G. L. Avery, R. A. Feiss, W. J. Kilpatrick, Henry S. Dennison, A. Kauffmann, W. E. Clow, F. D. Pitt, and George M. Verity.



## PREFACE

**N**O management question is more intimate than how far the employer ought to go in providing for the physical, social, and intellectual well-being of employees; no question of any sort is the source of more conflicts between employers and employees than wages; and the measurement of the efficiency of labor in cost terms is the final test that the managers of a company can apply to a labor policy. These three angles of the labor problem are presented in the two companion volumes.

As in these companion volumes, the approach to these questions of prime importance is practical, not theoretical. Nobody can know as much about the real character of a business problem as the men who are called upon daily, and perhaps even hourly, to say "yes" or "no" when cases are up for decision. Theory alone is inevitably subject to the danger that some of the important factors may be overlooked. Therefore, without any ready-made conclusions about what kind of methods ought to be used, or what policies adopted, those responsible for the preparation of this volume went direct to concerns and managers, including employers of both many and few workers, and investigated what is being done successfully. In the course of the investigation, concerns were found where policies that looked good on paper had proved unsatisfactory in practise, or merely served to irritate the always delicate relationships that exist between employers and employees. As far as possible, reasons for these failures were analyzed. The results of this

## PREFACE

inclusive investigation are incorporated in the present volume—in a number of cases in the words of managers who have had distinguished success with their methods.

In encouraging cordial and congenial as well as effective relations within the personnel of an organization, methods are innumerable and range from the natural “knack” of some to the physical and psychological analysis by the expert who often carries the scientific to a point of super-refinement. With such extremes this volume is not concerned. Theory has been sacrificed for the practical, and only such plans as have worked out successfully under everyday activities, and which may readily be applied to conditions in most any organization, are included.

Taken with the two companion volumes, which is necessary if the reader desires to gain the complete presentation of the problem, it is probable that nowhere else has there been brought together material at once so comprehensive and practical as that presented here.

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## **PART I**

### **THE WELL-BEING OF EMPLOYEES**



## CHAPTER I

### PROVIDING PROPER WORKING CONDITIONS

*To a certain extent, the surroundings in which employees work govern their output. This chapter summarizes the experience of numerous employers as to the directions in which it is necessary or desirable to attempt to improve conditions, and how far to go.*

CERTAIN questions arise in the management of employees that can never be separated from the warp and woof of the complete problem except by a disastrous operation; yet for purposes of treatment in this and companion volumes they must be so separated. Bear in mind, therefore, in reading this chapter and the following chapters, that the subjects treated are integral and in no sense set apart as something to be handled gingerly or *after* so-called "important" things are attended to. Working conditions affect profits. Provisions for safety are mere common sense. Decent housing is essential if workers are to be had in sufficient numbers and of the right caliber. "Welfare work" of certain kinds and managed in the right spirit may also be conducive to profits. The worker's health must be attended to, or dollars slip into the "loss" column. Fatigue, if it becomes over-fatigue, is dangerous to the quality and quantity of work. These are the problems treated in Part I of this volume, and the only sure way for the business man to approach each and all of them is from a business standpoint, and with no sloppy sentimentalism, no feeling that in the effective handling of these problems he is "doing something for the men." If the right

measures are undertaken, and in the right way, the inevitable result is better business.

The importance of good working conditions is obvious. There is a steady exodus of the most capable workers from concerns where working conditions are bad to those where they are good; and bad working conditions are at least a contributing cause in almost every strike. An employer may be somewhat dismayed by the apparently countless details which continually present themselves for alteration or improvement. But the detail aspects resolve into a comparatively few fundamentals; as:

1. Physical conditions;
2. Production surroundings and hours of work;
3. Odd-and-end conveniences.

Under physical conditions are grouped cleanliness, light, heat, ventilation, and appurtenances making for the health and comfort of workers. Formerly, heating almost alone was considered of importance by employers; but later ventilation came in for attention, and finally air conditioning, including the control of humidity, the removal of dust, air cooling in summer, and due regard to sufficient air movement in all occupied rooms.

Consider ventilation. A mercantile concern in the East compiled statistics to learn the approximate loss through colds contracted by employees. Taking into account the actual losses due to absences, and the less easily computable losses due to lessened efficiency, this loss was set at \$24 a cold. And colds are usually caused by faulty ventilation.

Another and perhaps even more authoritative estimate of the losses occasioned through colds and ailments attributable to bad ventilation and heating comes from a Baltimore concern. Its new building was regarded as a model, but during the first two win-

ters of its use, sickness attacked workers to the extent of 27.5% of the entire force. An investigation revealed defects in the ventilation and heating system. With these corrected, worker sickness fell to 7%.

A third bit of evidence as to the value of proper ventilation is given by a New York employer who states that by providing correct atmospheric conditions for his employees to work in he increased their output about 10%.

That ventilation and heating have a direct effect upon workers cannot be questioned. To what extent this effect can be expressed in terms of dollars and cents, as in the instances cited, is problematical. For example, an office that employs 50 clerks and stenographers, whose weekly pay aggregates \$1,000, is obviously losing \$100 a week if the capacity of its staff is lessened 10% as the result of improper ventilation and heating conditions. But who can really judge the actual extent of wastage of this type? Is it 10% or is it 20%? The only satisfactory way to remedy the evil is to make working conditions right beyond all question of doubt.

#### OTHER IMPORTANT FACTORS WHICH REACT ON THE WORKER'S HEALTH AND OUTPUT

Temperature and humidity—fairly easily controlled factors usually—have a direct and immediate bearing upon workers, even more important in effect on their well-being and capacity for effort than the chemical purity of the air that workers breathe. One expert states that “carbon dioxide, encountered in working practise, is not the harmful agent of major importance in expired air or air otherwise contaminated.” Another expert declares that “stagnant air, while objectionable, as demonstrated by a lessened desire for food, otherwise shows no debilitating effect on the mental processes on the individual, or on the

various physiological reactions which have been studied in various experiments."

Experiments on workers engaged under varying conditions of temperature and humidity are of great interest. Generally speaking, 68° Fahrenheit is found to be the proper maximum temperature for a room artificially heated. But not only the relative degree of humidity but also the type of work done have a bearing upon this figure, which in itself is merely one of the three elements that enter into the problem.

For example, with the humidity remaining constant at 50%, it is found that a temperature of 75° is favorable for tasks involving concentration; whereas a temperature of 68° is, speaking generally, more desirable for tasks which require a combination of mental and motor effort, as typewriting, for example; while a still lower temperature may be maintained to best advantage in a room where the work is largely physical. How profoundly the temperature affects physical labor is indicated by the fact that a group of men on whom tests were being made did 36% more of precisely the same work at 68° than they did under exactly similar conditions when the temperature was 86°. On heavier physical work the effect of temperature was even more marked.

That production-decreasing overheating is common in industrial plants is made clear by investigation. One investigation extending over several years, and taking into account the temperature in 215 workrooms, printing shops, clothing shops, bakeries, pearl-button factories, cigar shops, and laundries, developed that 156 of these workrooms, or 73%, had a constant temperature of 73° or over, and 63, or 29%, had a constant temperature of 80° or over.

It must be remembered that indoor temperatures over 68° may be more detrimental than the same temperature outdoors, on account of the compara-

tive absence of air movement. The actual effect of the atmosphere upon the body depends on the rate of heat loss from its surface, and this in turn depends on the humidity and movement of the air, as well as on its temperature.

That the general health of the worker is affected by heat is shown by the fact that a rise in the temperature of the air is followed by a slight rise in the temperature of the body; that the respiration is not altered; that the pulse rate tends to decrease in a cooler room, and the blood pressure does not decrease so fast as in the warmer room; and that the comfort of the workers is greatly increased by the use of electric fans in a warm atmosphere.

Here is a curious tendency of interest to employers. A warm room—a room at 89.5° Fahrenheit—does not tend to affect a man's judgment unfavorably, it is found. On the contrary, a high temperature, especially if it be accompanied with a fresh air supply, tends to improve his judgment, experiments show. Another pertinent fact brought out by experiment, is that the inclination to work is greater at a fresh air temperature of 68° than at 75° in the proportion that 117 bears to 106. Tests made at the same temperature, but with stagnant instead of fresh air, showed a difference in favor of 68° over 75° in the proportion that 119 bears to 100. Fifty per cent humidity generally is regarded as most beneficial.

Summarized, various experiments in ventilation seem to prove that:

1. Carbon dioxide, as encountered in working practise, is not the harmful agent of major importance in expired air, or air otherwise contaminated.

2. A temperature of 68° Fahrenheit with a proper relative humidity, is the proper maximum temperature for living rooms artificially heated.

3. The principle of ventilation by air current is preferable to that of ventilation by air dilution.

4. For adequate ventilation, smaller volumes of air suffice when introduced by currents than when introduced by dilution.

5. Ventilation which utilizes the principle of convection in producing currents is more effective and economical than that which neglects this principle.

6. Upward ventilation currents in crowded rooms are desirable, provided the sources of air supply are free from contamination.

7. In making use of upward ventilation currents, attention should be given to the counteracting of wall and window chill.

8. In those processes of manufacture where considerable carbon dioxide is liberated, the carbon dioxide content is not a proper index of air pollution.

9. For the removal of kitchen odors, body odors, stable odors, and other odors associated with heat production, upward ventilation is more efficient than downward ventilation.

10. The delivery of a certain volume of air per unit of time, per occupant, into a given space does not necessarily constitute ventilation.

11. Air which is introduced into an occupied room in such a way that it strikes the occupants should be not lower in temperature than 60° Fahrenheit.

12. Heating and ventilating are two distinct problems and, therefore, the installation of heating and ventilating systems, whether separate or combined, should be such that neither system shall interfere with the effectiveness of the other.

13. From the standpoint of health, relative humidity is one of the important factors in ventilation.

14. The use of effective air cleaning devices are desirable in all ventilating installations where the air

supply is liable to be contaminated by dust or other objectionable matter.

15. The bacterial content of the air is an important factor in all ventilation, and bears a direct relation to the source and quantity of the air supply.

Good lighting is another factor of obvious importance in effective working conditions. There is no disagreement as to the fact, but there is sometimes a misunderstanding of what good lighting is; or a mere neglect to undertake its provision, when understood.

Take a hypothetical case. Suppose a workroom has been inadequately lighted with clusters of the old-style carbon filament lamps placed near the ceiling. Due to the inadequate artificial light, on cloudy days or at night, or even on sunshiny days, if the windows need washing, the typical employee is not able to work consistently to the best advantage. Even though a lamp cluster happens to be near him, the surrounding space is poorly lighted.

#### HOW MUCH LOST TIME IS CAUSED BY BAD LIGHTING?

It is beyond reason to suppose any accurate determination of the amount of time lost under these circumstances is possible. But in an eight-hour day with its 480 minutes, it might readily be imagined that a worker, losing a minute here and another there because of poor light, would in a day's work total five minutes lost from this cause alone—roughly, a 1% loss in time.

If a new type of lamp giving the same inadequate light as formerly is installed, but with a saving of 50% in the energy consumed by the lamps, this means 50 cents saved on each \$1 expended for light. But the wage and production loss continues and may amount to \$30, more or less, during the interval covered by an

expenditure of \$1 for light. Thus, to forget the light bill, and to install more light in order to save the production loss, obviously is of vastly greater consequence.

Understand, these figures are but approximations. But their general meaning is sufficiently accurate. And isn't it absurd for an employer to hesitate to choose between an inferior lighting system that may save a few light-bill pennies, and a better system that may result in vastly more important savings in production? A typical plant bay of, say, 640 square feet floor area, may have an annual lighting cost of \$50, while the wages and overhead for the workers in this bay may be \$7,000 annually. Here, 1% of the light bill is 50 cents per annum per bay, while 1% of the wage charge is \$70 per annum per bay. Which 1% is it desirable to save?

From 60% to 70% of a working-day, however, usually need not depend upon artificial illumination. Far too little attention is commonly paid to natural illumination. But modern factory construction is rapidly tending in the direction of the window-walled building, and the saw-tooth roof.

From the standpoint of accident prevention alone, proper illumination is important. Dark passageways are particularly dangerous. A worker who stumbles, say, while carrying a ladle of molten metal may incur serious injury. A strong dazzling light over a platform or over the landing at the top of a flight of stairs may prove blinding and be the cause of injuries. A large number of accidents occur in the winter months, especially in the afternoons, when artificial illumination is necessary.

Uncleanliness also results from faulty lighting. A well-lighted shop is pretty sure to be clean, bright, and cheerful.

An illumination expert states: "The requirements of a hygienic and effective light are that its color shall

be as near as possible that of sunlight, sufficiently diffused so as not to dazzle the eyes and impose a distinct strain; that there shall be no flickering or unsteadiness; that it shall be properly screened to remove the glare and direct the light downward on the work and not into the eyes of the workers; that the placement of the lamps shall be such as to avoid shadows; and that it shall not vitiate the atmosphere nor produce sufficient heat to create discomfort."

The advantages of effective illumination may be summarized as (a) increased production for the same labor cost; (b) greater accuracy in workmanship; (c) reduced accident hazard; (d) avoidance or at least reduction in eye strain; (e) surroundings made more cheerful; (f) work performed with less fatigue; (g) order, neatness, and sanitation promoted; (h) supervision made more effective.

The Pennsylvania Department of Labor and Industry, following extensive investigation, has set forth maximum and minimum illumination intensities under varying conditions in the following table:

	Minimum Foot Candles	Acceptable Practise— Foot Candles at The Work
Roadways and yard thoroughfares.....	0.05	0.05 to 0.25
Stairways, passageways, aisles, storage spaces..	0.25	0.25 to 0.50
Rough manufacturing operations, such as foundry work, rough machining, rough as- sembling, rough bench work.....	1.25	1.25 to 2.50
Fine manufacturing operations, such as fine lathe work, pattern and tool making, light colored textiles, tobacco manufacture. (This amount of illumination, or at least that of the next division, should also be suitable for salesrooms and office work).....	3.50	3.50 to 6.00
Special cases of fine work, such as watch mak- ing, engraving, drafting, dark colored textiles	5.00	10.00 to 15.00

Building construction has much to do with good working conditions. One concern reduced its working-day from 10 to 9 hours shortly after moving into a new building, but got out the same production as before. The old building had more wall than window area, and was dark inside. The new building has walls constructed almost entirely of glass on steel framing, a saw-tooth roof, and is painted inside. It is far better lighted all day than the old building.

To sum up, the light best suited to given conditions must be judged not nearly so much on first cost and operating cost, as on production advantages. Considered on this basis, light may become an operating asset rather than merely a necessary and annoying expense. The question is—how much light, and no more, is needed to provide the best working conditions?

THESE FACTORY MANAGERS AGREE THAT PROPER  
SANITATION IS A GOOD INVESTMENT

Sanitation is a fourth important factor in physical working conditions. A building ideally constructed, properly lighted, heated and ventilated, but not kept healthfully neat and clean, may diffuse the efforts of employees wastefully. "Our workrooms, storerooms, and offices," says one manager, "are scrubbed every week, and more often if necessary. All windows are thoroughly washed and all platforms kept free of debris. The driveways leading to the city streets are also kept in good condition—free from all refuse. At regular intervals we sprinkle the floors with disinfectants. We are confident that the expense involved is more than repaid."

Another employer says: "We must thank our employees almost wholly for our clean workrooms. Each man paints his own machine and helps out all around in keeping clean the place or section in which he works. The benefits from this plan are mutual.

"Our sanitation movement did not originate spontaneously, but here and there a man would get a 'cleanup' idea and we immediately let the man next to him or around his place begin to see what his neighbor had accomplished. Sooner or later, we found, rather than to be outdone, he would do likewise, and so on until the friendly sanitation rivalry extended to entire departments.

"We provide the paint."

Sanitation is only common sense; though nobody objects to a bit of dirt if it doesn't get so bad and continue so long that disease germs have a chance to breed, or unless it really is detrimental to work in some way. Food-making establishments quite properly go to extremes in the matter of cleanliness. A fruit syrup company in the East white-enameled the walls and floors and dressed all the people in white. That was a splendid innovation, with considerable hygienic and advertising value; but the management lapsed a little from common sense when the enthusiasm for spotlessness was carried into the boiler and engine rooms, and the souls of engineers and firemen were harrowed by an order making white duck trousers and coats the order of the day.

The test of all these activities, construed broadly and with due consideration for *all* the factors, is always: what is the profit value?

Light, heat, ventilation, sanitation—all have a clear bearing on occupational disease, a subject which has been intensively studied and investigated for a number of years. On employers the responsibility has been definitely placed to make conditions such that the hazards through dust, poisons, infections, dampness, fear, devitalized air, and high temperature, are minimized. One authority on the subject states that more than 4,000,000 workers are subject to serious dust hazards; and that many poisons menace the health

and the very existence of workers. Fully half of the buildings occupied by business concerns, he asserts, are not properly ventilated; and large numbers of men are subjected to excessive heat in their work, and an unknown number are needlessly subjected to exposure to weather and other conditions inimical to their health.

Death rates vary enormously in different occupations, and certain industries are extremely dangerous to the worker unless great precautions are taken. In his report on occupational diseases in Ohio, Dr. E. R. Hayhurst says:

"A most important feature in the relationship between work and disease is the problem of the worker himself. Some workers are very much more susceptible to health hazards than others, so much so that, hygienic as certain industries and processes can possibly be made, still there are some types of workers who should not engage in them. This is exemplified by many instances of natural selection; for instance, delicate and sickly disposed persons usually do not follow fatiguing or heat-exposing trades. Unfortunately, voluntary selection of work does not apply so closely to older workers who have been following the more hazardous undertakings for years, and who, although weakened from various causes, still endeavor to remain at their chosen vocations, irrespective of the damaging effects upon the body. Here the only remedy is for the employer to take steps to check the practise, and arbitrarily to fit the worker into less health-hazardous work."

In general the causes of disease are distributed among conditions found in the individual, the industry, the community, and the home. An exhaustive investigation by the United States Public Health Service shows this clearly with tuberculosis. Among a large number of workers suffering from tuberculosis, indus-

try is charged with 18.1%; poverty and bad housing, 9.7%; personal vice, 10.8%; heredity, 32.4%; other diseases, 8.4%; and indeterminate, 20.6%. Even if the employer has no control over working conditions outside of his own concern, he still has nearly 20% of disease marked up for his attention as fundamentally "occupational."

So much for physical conditions. Next, what about production and hours of work?

If the whole truth were known, it is probable that the basis of a good deal of the agitation for shorter hours is merely a symptom of lack of interest in the work on the part of the employees. Thomas Edison knows no hours. The man who is thoroughly bound up in his work does not particularly concern himself about starting and stopping times. He keeps at work for the joy he finds in carrying it through. That interest in the work can be cultivated in men even in industry as it is today organized is satisfactorily demonstrated by the experience of Robert B. Wolf, described in a companion volume. Looked at with this in mind, the agitation for shorter hours would seem to be a severe indictment of management, on the grounds of not making work interesting.

LACK OF INTEREST IS NOT THE ONLY CAUSE  
FOR UNREST. HERE ARE OTHERS

There are, of course, other reasons for the agitation. One is the fallacious idea not uncommonly found in the ranks of labor, that the less each individual does, the more work there will be to go around. This idea has been proved economically groundless time after time, and we know that production breeds demand and demand in turn breeds further production as relentlessly as the daily rising and setting of the sun. But an error once circulated and generally accepted, is as powerful an incentive to action as truth.

A far sounder argument for a shorter working-day is in the dulling effect on men's minds and bodies when work is continued beyond a reasonable point. This effect has been demonstrated beyond doubt in many cases, and where the effect appears it is not more to the interest of the employee than of the employer to see that a working-day of proper length is put in force.

Excessive working-hours are no longer very common. And the number of working-hours varies in different industries. In wool manufacturing, for instance, 90% of the concerns investigated work on a weekly schedule of from 54 to 56 hours, while in many other industries a schedule of 48 to 50 hours a week is followed. Office and clerical forces as a rule are found to work from 44 to 48 hours a week.

An employer who had formerly been on a 10-hour basis changed to a 9-hour basis. He was satisfied that one of the hours in a 10-hour day was a "tired hour," and that this hour was the tenth one. So he lopped it off. At the end of the year his costs showed a 4% reduction, and he actually got greater output. Wages, needless to say, were not cut.

This is not a universal experience. But in the main it appears that far-sighted employers are declaring their independence of tradition, and shortening hours of work to the point where they have reason to believe they are getting the best results.

An Ohio manufacturer says of his experience: "It is our aim always to be ahead of the law and the demands of labor. Our hours now are less than the maximum prescribed by the state law, and we intend shortly to reduce them still further. Why? Because we watch our people very closely and if we detect signs of over-exertion, we investigate the cause. Our organization is keyed up to the top pitch and we would not be able to maintain this level if we tolerated for a moment any condition that detracted from

effectiveness. So, if we find our people can't hold the pace throughout a certain period, we shorten it to the point where they get along better.

"At the present time the number of hours worked weekly in this plant is 50, as against a prescribed maximum of 54 for women. We contemplate lowering the hours to 48."

The experience of one middle western concern—a steel enameling plant, is interesting. The operation of enameling must be practically continuous, and in Europe and very generally in this country until recently, the customary work division of the 24 hours was in two equal parts. But in this particular plant the two 12-hour shift plan long has been supplanted by one of three 8-hour shifts.

Wages have not decreased; on the contrary, general efficiency has increased, and wages steadily have risen, until now it is possible for the workers to earn considerably more than before. Output, too, has gone up. For example, with bath tubs, where formerly 8 to 10 tubs in 12 hours, for two men working together, was normal production, they are enameled at the rate of 2 an hour, or 16 in 8 hours.

Similarly, another employer reports that he found that shorter hours not only make for greater contentment of the working force, but result in greater output as well. In studying his requirements of continuous production he became convinced that 12-hour shifts were too long. He changed the two long shifts to three of eight hours each, the pay of the workers and the amount of production to remain the same. In a very short time production actually began to increase, until after a thorough trial the shift output had increased nearly 50%.

One of the big advantages of shorter hours of work, shown by the investigation of British experts, is the decrease in wasted time. Their report in part reads:

"A part of the improvement observed in output was due to the workers starting work more promptly when on shorter hours. At one period women in one concern lost on the average 37 minutes daily by starting work after, and stopping before, the nominal time. Nine months later, on a shorter schedule, their hourly output was 25% better, and they lost only 26.5 minutes daily in these ways."

A NEGATIVE REACTION SOMETIMES OCCURS,  
AS EVIDENCED BY THIS REPORT

On the other hand, with some concerns the adoption of shorter work-hours has resulted in decreased output. A report issued by the National Industrial Conference Board is authoritative in this connection. The report deals with the cotton manufacturing industry, and is based upon reports from 166 establishments employing 116,000 workers. It says in part:

"Reduction in hours of work in northern cotton mills from 58 or 56 or 54 hours has in a great majority of concerns resulted in decrease in output. In some concerns a part of the loss was promptly made up by increased effectiveness of workers, but this experience was not general.

"Eventually, improvements in equipment, in methods of management, and in other respects, with some concerns brought total output per employee up to that previously attained under a longer week. This, however, necessitated a material increase in investment. Data available for southern cotton mills indicate that hours in excess of 60 per week do not necessarily yield a materially larger output than 60 hours. Reductions below a 60-hour schedule, however, usually resulted in substantial decreases in output."

Changes in output are not, of course, the sole justification or condemnation of a shorter hours-of-work schedule. Probably in this matter of hours the pref-

ferences of the individual employer cannot be allowed to govern, but ahead of his preferences may have to be put the welfare of society. One authority says in this connection:

“In reaching final conclusions on the most desirable arrangement of hours-of-work schedules, there must be taken into account not merely production, but also the question as to what schedule of hours will, in the long run, best maintain the productive period of the worker's life, help his self-development, promote the welfare of the community, and generally raise the standard of citizenship among industrial workers.”

Below a reasonable point, hours cannot profitably be reduced. But down to a certain point, conclusive experience demonstrates, they can. What is reasonable for each case depends, of course, upon the character of the work, the employees, and other conditions.

Now we come to a third division of the subject of working conditions—those odd-and-end conveniences which circumstances necessitate, such as lunchrooms, restrooms, lockers, and the like.

Employer-conducted lunchrooms have been installed by many concerns. They have proved not only a convenience to workers but also a direct means of safeguarding their health, and thus of increasing their productivity. A British report on employee lunchrooms (industrial canteens, the British call them) reads in part:

“The problem is to supply suitable food at as low a price as possible, for large numbers of workers at specified times. By far the most hopeful enterprise has been the establishment by employers of industrial canteens, in or near the concern itself. This practise has abundantly justified itself from a business and commercial point of view, as well as a worker health standpoint.

“Generally, it is found that the accommodation provided accords with one or other of the following types: (a) an available room for the workers to eat their home-prepared food; (b) a room furnished with a ‘hot plate’ or ‘warming cupboard’; or provided with hot water; (c) a refreshment wagon to go through the workshops at appointed hours (particularly useful for light refreshments during long spells or night shifts); (d) a fixed refreshment bar or buffet; (e) a dining room supplying cheap hot and cold dinners; and (f) such a dining room associated with an institute or club, with facilities for rest and recreation. Some of these types may be suitably combined, but, although arrangements indicated in (c) and (d) may prove sufficient and satisfactory under certain circumstances, the provision of proper meals seems obtainable only in the types (e) and (f).

“Warming cupboards, mentioned in (b), usually are installed in or near the messroom and heated by steam. The cabinet may be constructed of sheet iron (finished off with asbestos and wood covering), with shelves of perforated sheet iron. Employees deposit their food in basins or dishes when they come to work, the cupboard is closed, and steam is applied. At the dinner hour the employees call at the cupboard for their food.

“It is recognized that the necessity for, and type of, an industrial canteen is dependent upon the need and its degree, in each concern, but it is plain that in the highest interests of both employer and worker proper facilities for adequate feeding arrangements should be available in or near, and should form an integral part of the equipment of, all modern concerns.”

This report from which quotation is made also suggests dietaries which are adopted to restore expended energy. Emphasis is laid upon the value of workers eating fresh fruit, as apples, oranges, and bananas,

and of avoiding highly stimulating foods and refraining from eating between meals or at frequent intervals. It is pointed out that about 15% of the energy expended by workers is derived from protein, and about 80% from fats and carbohydrate combined. It is also brought out that the energy normally required by a man engaged in fairly light work is about 3,500 calories a day.

Investigation indicates that between 36% and 37% of all workers have digestion impairment in some degree. In many instances workers who produced far below the average were found to be coming to work without breakfast. In one concern a change of hours more favorable to a proper allowance for taking breakfast increased output 12.4%.

Employees' lunchrooms seldom "break even," it is found. Some employers do not expect them to. Others try to make expenses and fail. Generally, so long as the loss does not exceed a predetermined figure, nobody worries much, provided the restaurant is giving good, clean, substantial food to workers at right prices. The cost is made up in other ways.

#### WHAT MAKES AN EMPLOYEES' LUNCHROOM A SUCCESS?

In most instances where employees' lunchrooms are successful, it is because the management sees to it that properly balanced rations are served promptly, in a clean, convenient place. Also, it generally is the management which best appreciates the fact that too many sweets may get into dinner pails to profit men for the afternoon's work; that too many cold lunches are eaten; and that too often when a worker reaches for his dinner pail it is about all the noonday exercise he takes. These facts all point to the need of employer-operated lunchrooms, when adequate facilities are not otherwise obtainable.

Inducing employees to patronize the lunchrooms provided is another problem. Some employers figure that the need for a substantial hot lunch is so important that they furnish the lunches to employees absolutely free of cost to them.

Many concerns assume part of the cost of workers' lunches. One company serves meals free of charge to all women employees and office men, and others who are on a per-hour scale of wages pay 50% of the cost of their meals. About half of the employees of this company receive free meals under this arrangement, and about 95% of all employees of this concern use the lunch facilities offered.

One employer has a successful plan for keeping his lunchroom deficit down to a reasonable figure. It involves what is known as a basic meal. This consists of bread, meat, and a vegetable, and sells at less than cost. Salads, ice cream, and other luxuries, however, provide sufficient profit to offset the loss. Practically no instances were found where rent, light, and heat were counted in the cost to employees of maintaining lunchrooms. These items are cheerfully paid by the company, and where deficits are incurred, they are over and above any charges for these elements.

Cafeterias (self-service lunchrooms) have done much to solve the problem of low-cost quick service, at the same time allowing a choice of menu.

Serving-tables on wheels work out well for concerns which must serve at tables a large number of employees in a short time. Where food does not have to be taken to tables, similar service wagons, called in one plant "cafemobiles," are effective as distributing centers from which workers get hot lunches.

Frequently where restaurants are provided employees are forbidden to eat in the workrooms. In such instances, however, space is provided in the lunchrooms

for those who prefer to bring their own lunches. Generally such rulings are not to enforce a greater patronage of the company restaurant by employees, but for sanitary reasons.

Since employers generally lack an accurate measuring stick to apply to their lunchroom operation, it may be worth while, for comparative purposes, to consider the percentage of attendance at lunchrooms where no compulsory rule holds. Of the dozens of employees' lunchrooms covered by investigation, the attendance ranged from as low as 10% in one concern to 90% in another. About 60% is the average attendance for factory employees, it is found, while a considerably higher percentage holds for office workers.

The average purchase per company-lunchroom patron also may be interesting. For one eastern concern operating a lunchroom on the cafeteria plan, the figure is between 10 and 11 cents, and represents three items of food. Some concerns report average purchases as low as 7 cents per worker and some as high as 30 cents. About 20 cents seems to be the popular price for company *table d'hôte* luncheons, however. Even the small plant can provide a gas plate oven or a coffee urn.

Restrooms, especially in concerns where a number of women are employed, are commonly a necessity. The question nowadays with most employers is, "What sort of restroom shall we have?"

The answer to this question is, of course, largely determined by conditions. If designed to accommodate large numbers of workers, one or more large rooms with an attendant in charge usually are provided. Where the workers are few, a small, simply furnished room may meet all requirements. The furnishings need be little more than pleasing, comfortable, and sanitary, with good lighting, easy chairs, and possibly plenty of well-selected reading matter. When a con-

cern has no first-aid room or emergency hospital, the restroom should usually be provided with a first-aid cabinet. Comfortable couches may also be provided, and at least one room kept quiet. A department store has gone so far as to install a "silence room" where employees who are ill or "out of sorts" may find rest and quiet.

It is difficult to measure the value of a restroom in dollars and cents, and perhaps no such measure is necessary or desirable. Most of the advantages must be taken for granted.

CARE IN SEEMINGLY UNIMPORTANT DETAILS  
SUCH AS THIS ONE PAYS A GOOD DIVIDEND

Good lockers, a detail, may help a little to make workers like their working conditions. One expert says on this subject: "Upon entering the shop or office, the employee's first need in the shape of sanitary equipment is a place to dispose of his or her outer garments. It is my experience that the individual locker system is more satisfactory to the employees, thus giving them clean, safe places to deposit their outer garments, and even making it possible for them to make a complete change. By using a sensible locking system they are able to control the safety of their property.

"Lockers should be substantially constructed, and connected in units to the best advantage for the space available. Great care needs to be taken in selecting the type of locker. Some of the points to consider are that it have sufficient depth to allow the use of a coat hanger in order that the garments of the employee may be spread out, for on some occasions they will be damp. By spreading them out they will dry much quicker and have a more presentable appearance.

"It is well to see that the lockers have sufficient width to allow the hanging up of the hat, and any

other garments if the employee should desire to make a complete change. A height of about 54 inches is sufficient to take care of the average needs.

"A slanting locker top largely eliminates the collection of dust and prevents its being made a catch-all for material which might fall off and injure employees, or cause a disorderly appearance. A good plan is to have the bottom of the locker sit up not less than eight inches from the floor, for ventilation and cleaning, with an opening in the bottom to allow of attaching a ventilating system.

"One of the important points is the selection of the latch and lock. The latch should be a type which is operated by the handle pulling outward or upward; no matter how little strain you put on it, the door comes open. The type of lock should be that which locks in some way the latch, along the padlock order, rather than the cabinet type.

"On the distribution of lockers in offices or factories, I believe the ideal condition is to have locker rooms connected with both lavatory and shower-bath rooms, and as near the entrance of the building as possible. If the installation is made in old buildings, conditions may exist to cause the equipment to be placed at points other than the entrance, but these always should be consistent with the object in view; that is, to provide a safe and clean place for the clothing of employees. Under such conditions employees take considerable pride in their personal appearance, their surroundings, and their employment."

The provision of convenient toilet, washing, and bathing facilities for workers is also necessary. Too often, however, when washing facilities are provided sufficient attention is not paid to the details of construction, with the result that lavatories quickly get out of repair. This can be avoided if installations are simple in construction and arrangement; strong

and durable; sufficient and suitable in accommodation, so that many workers can wash together in a short time; economical in space; so constructed that they can be easily cleaned; provided with ample supply of cold and hot water; and so situated in the concern as to be easily available.

In addition to ordinary washing accommodations, bathing facilities in many industries are necessary, especially in those industries in which workers are exposed to great heat and excessive dust, or are brought into contact with poisonous material. The number of these baths should be sufficient to enable workers to have a bath at any time without appreciable delay; privacy should be insured; construction should be carried out to facilitate the maintenance of absolute cleanliness; pure water at a temperature of about 100° Fahrenheit should be used; soap in the form of a cake sufficient for one bath should be provided; and where necessary there should be provision for drying the clothes of workers.

Employers who provide the best working conditions get proportionate returns—other things being equal. The results include healthier employees, and sometimes noticeably increased output. As one authority puts it, "If workers at their work are set bad examples of unsanitary conditions and faulty hygiene for 10 or 12 hours a day, we cannot expect them to do other than to reflect their working conditions."

## CHAPTER II

### FATIGUE—AN EFFICIENCY FACTOR

*That there is a relation between the degree of fatigue and the rate and quality of production is obvious to everybody in all kinds of work. Just how important a factor this relation is from the management standpoint, however, is not always understood. Some studies and conclusions are presented here.*

THE length of the working-day, touched on in the previous chapter, bears a direct relation to fatigue. Fatigue, in turn has a bearing on the efficiency of employees. It is probable that undue fatigue has been one of the biggest sources of waste in industry, though this is now probably on the mend. Experiments conducted with his business by William J. Crawford, president of William J. Crawford and Company, have a direct interest in this connection, because they bring out the relation that exists between the amount of work well done, and the time spent daily on the job. He put his plant on a 7½-hour working-day, as the result of experiments extending over some 15 years. Mr. Crawford's business is granite cutting. He is a practical granite cutter himself. And he relates an experience that has influenced his thinking on this subject.

"One time, years ago," he says, "I was out of town with several men on a job. It was the day before Christmas and I had promised my little daughter that nothing would keep me from being home for Christmas. As the day wore along I was straining every

nerve to finish up. There wasn't much more to do, but when the time came that we had to stop work, I judged from the progress we were making that it would take us at least three hours more to finish the job. The day after Christmas we went back and finished it in one hour.

"What was the reason? Simply that when we went back to work the second time we were fresh, and a fresh man can do twice as much work and better work than a tired man. I do not know whether this is true of other lines, but it certainly is true of granite cutting."

Crawford's company has a cost system which goes back over 40 years—to 1880, to be exact. In January of that year they commenced to keep a record of each man, and the exact cost of each piece of work, and this record has been kept up ever since. It includes a card for every granite cutter, each piece of work he takes up, the day and hour commenced, and the day and hour finished, the exact working time, wages paid, quarry charges, loss and gain. From this complete record, wages were fixed in excess of the minimum amount which was set by the union.

This cost system extends back to the time when the working-day was 10 hours. It shows that the same men accomplished more when the working-time was reduced to 9 hours; and, again, when the time was reduced to 8 hours the same men accomplished more than they did in a 9-hour day, and considerably more than when working 10 hours. Since the working-day was reduced to 7½ hours, in February, the average production for each man had increased approximately 8%.

"My observation of the conditions, and I am with my men all the time they are working," said Crawford, "is that as men work today in the granite-cutting trade an 8-hour day is too long, and I believe any good granite cutter—the man who works with

his brains as well as his hands—could do just as much in 7 hours, or even  $6\frac{1}{2}$  hours, as he does in 8. In fact, I have found that he can do more. This may sound radical, but from close study I have found that 16 hours for 'rest and refreshment' is not sufficient for a granite cutter to make him approach his work in the morning in a perfectly rested condition.

"To illustrate what I mean, take the baseball pitcher. You would think the manager crazy who put one of his star men in the box for two consecutive days of about two hours each. Now what granite cutter does not put as much of his brain into his work in a day as these stars? The wise manager knows he can get the best results from a man whose brain and muscles are not fatigued. We employers of granite cutters can learn a lesson from them. Once in a while there is an Edison who can work long hours profitably, but they are few. The short life of granite cutters is not due to the dust alone, but also to the hard work the trade requires."

THIS IS HOW CRAWFORD TESTED HIS  
THEORY FOR "BLOW-HOLES"

It was in 1913 that Crawford began to turn his theory regarding short hours into action. He decided to make an actual test which would show whether he was right or wrong. In order that this test might be absolutely fair he allowed the granite cutters' union to select one of his employees on whom the experiment should be tried. They selected a man named Frank Bullock.

Bullock was told that the company had a record of his work for a considerable time past on the 8-hour basis, and that he was to work on a 7-hour basis for 6 weeks and a record would be kept of his production, and compared with his 8-hour work. The experiment showed that he did more work on the 7-hour schedule

than on the 8-hour schedule, not only on one class of work, but on all classes of work. This experiment was checked with others, using different workmen, and the results were always the same.

Crawford's 7½-hour day at present in force is arranged as follows:

The men start work at 8 a. m. At 10 o'clock they have a rest period of 15 minutes. They stop work at 12 o'clock and start again at 1 o'clock. There is another rest period at 3 o'clock and they stop at 5 o'clock.

Here are some facts which Mr. Crawford has found out about the way men work:

Their efficiency is either increasing or constant from 8 o'clock in the morning up to 10 o'clock. After that the curve drops abruptly until noon.

After the noon-hour rest, their efficiency seems to be as good as at 8 o'clock in the morning, but they tire sooner, reaching the diminishing point somewhat before 3 o'clock. Without rest, their efficiency has fallen off materially before 4 o'clock, and the last hour's work is of very little value.

The higher the intellectual standard of the workman, the more quickly his efficiency drops after it has reached its peak.

Men work better after even a short vacation, and the beneficial effects are not confined to the first few days following their return.

The question of finding some means whereby his men can have vacations has given Crawford some concern. In the first place, his rush time is during the summer months of the year, and the slack season is in the winter.

But workmen do not want vacations in the winter, and where they take them, the good effects are not so pronounced as in the summer when they can be out-of-doors breathing in fresh air and sunshine.

For this reason he has decided that each man is to have a summer vacation if only a short one, no matter if it does apparently hamper production at the busiest time. He believes a few days' rest enables the men to do more work after they get back, and the increased efficiency makes up the loss. He has not yet found a plan whereby he can give all of his productive labor an extended vacation with pay, but as a beginning he has adopted the following plan:

Each man is allowed to leave his work on a Thursday night and stay away until the following Monday morning. This means a day and a half lost time, for which they receive full pay. If they wish to extend their vacations for a week or longer they may do so at their own expense.

The effects of fatigue are manifest in a diminished capacity for doing work. Says an expert on the subject: "It ordinarily is associated with familiar bodily sensations, and these sensations are often taken to be its measure, but it is of vital importance to employers to recognize, not only that bodily sensations often are a fallacious guide to the true state of fatigue which may be present, and a wholly inadequate measure of it, but also that fatigue in its true meaning advances progressively, and is marked at any stage by a diminished capacity for work, before its signs appear plainly, or at all, in any bodily sensations.

"The happy and really adequate performance of physical work depends on the activities of parts of the body which are best considered under these three groups:

"1. The complex nervous mechanism of the brain and spinal cord, which are concerned in the initiation and distribution of impulses to action.

"2. The nerves which conduct the impulses to muscles.

"3. The muscles, which by contracting finally perform external work.

"Fatigue depends not upon the simple using up—'exhaustion'—of the substances supplying the chemical energy which is liberated during work, but upon the accumulation of 'waste' in the products of the chemical changes involved. That is to say, it is not to be compared with the failure of fuel as in a steam engine, or with the running down of a clock spring, but rather with the clogging of the wheels of a machine by dirt.

"The chemical 'waste' accumulations in nervous and muscular activities are removed by the blood, in part directly by irrigation, and in part indirectly by chemical changes in the tissue itself, induced by constituents of the blood. It follows, therefore, that rest after activity is not passive, but an active process, leading to a restoration of normal capacity for work. Time is required for this process and the time will be in proportion to the amount of restoration needed. If activity is repeated too quickly for the completion of the restoration process, fatigue will of course become progressively more intense as the debit balance accumulates.

THESE TESTS SHOWED THAT FATIGUE IS NOT  
ALWAYS MERELY PHYSICAL

"In the physically tired man the symptoms of fatigue are attributed to the muscles; they ache, or 'give way,' under him, but in reality the most severe bodily activity fails to produce even a close approach to complete fatigue of the muscles. The fatigue is fatigue of the nervous system, though in sensation its effects may be attributed to the muscles themselves. It is well known that a man apparently 'run to a standstill' in a race, may with the addition of some new excite-

ment or urging, run freshly again, under augmented stimulus from the nervous system.

"The problems, then, of industrial fatigue are primarily and almost wholly problems of fatigue in the nervous system and of its direct and indirect effects. Fatigue following muscular employment is primarily nervous fatigue, . . . . and where severe muscular effort is required it has been proved that the maximum output and the best conditions for the workers . . . . will be secured by giving short spells of strenuous activity, broken by longer periods of rest, than for the employments in which nervous activity is more prominent or more complicated. Here is an example of how this works out:

"Just before the armistice was signed two officers at the front, for a friendly wager competed in making equal lengths of a certain trench, each with an equal squad of men. One let his men work as they pleased, but as hard as possible. The other divided his men into three sets, to work in rotation, each set digging their hardest for five minutes and then resting for ten, till their spell of labor came again. This team won easily. The problem here gives another obvious opening for scientific organization based on the results of experiment.

"The special problems of industrial fatigue come under the head of nervous and mental fatigue. This may spring from the maintained use of intelligence and observation, with varying degrees of muscular activity, or from steady attention maintained upon one skilled task, or of distributed attention, as when several machines are to be attended. Or again, it may depend upon the continued use of special sense and sense organs in discrimination by touch or sight.

"Fatigue under this head will be greatly affected according to whether the worker has opportunity for obeying his natural work rythms, or whether unnat-

ural rythm and strain is imposed by the pace of the machines or of his fellow workmen. Fatigue will be more rapid if the work is of a 'worrying' or 'fussy' kind—that is, with a multiplicity of irregular rythms.

"The true test of fatigue is diminished capacity and the measurement of output in work will give the most direct test of it. The output should be measured under the ordinary conditions of work, and where the output is not automatically measured, it must be measured by methods which do not make the workers aware of the test being made, or errors due to special effort put forth from interest or emulation will creep in. These measure records of output to be useful must extend over long periods, to show the onset of fatigue over the whole day, the whole week, and under particular seasonal or other conditions, in order to detect and measure the results of accumulating fatigue.

"While measurement of output must obviously be recorded at so much for each unit group, it is important to observe the output of particular individuals. It will usually be found that there is a surprising variation of individual output, independent of personal willingness and industry, and generally quite unsuspected. This good individual output often is the result of escape from fatigue by conscious or unconscious adoption of particular habits of manipulation or rhythm and its discovery allows the propagation of the same good method among others.

"It has been found that where wrong conditions of work prevail, especially that of excessive overtime, a deliberate 'loafing' of the workers actually gives an improvement in the amount of output over a period of some length, by sparing fatigue, just as the 'nursing' of a boat crew over part of a course improves their performance.

"An important and early sign of fatigue in the nervous centers is a want of coordination and failure in the power of concentration. This results in an increased frequency of accidents, and accidents are costly. They are due to momentary loss of attention, and result in personal injury to the worker, which may be either trifling or serious, breakage of tools or materials, or the spoiling of work. In well-managed concerns accidents are recorded for unit periods during the day. A careful analysis of these various indications after taking into consideration other factors as rate and speed of the work or other variables, often serves as a secondary index to fatigue. This may suggest a remedy, possibly by 'spelling' the worker before fatigue causes him to fall below the safety point."

#### HOW CAN THESE BAD EFFECTS OF FATIGUE BE PREVENTED?

Rest periods have proved a satisfactory means of reducing fatigue in many concerns. Mr. Crawford's methods have already been described. From 5 to 15 minutes recess, when such periods are used, are usually given both in the middle of the morning and afternoon. Sometimes this time is devoted to calisthenics. In one concern, where a 5-minute rest period is given employees each morning and afternoon, two main aisles and two cross-aisles are used as a running track.

To offset a decline in effectiveness in stenographers during the latter part of the morning, one employer conducted a series of rest tests, and found that more and better work was turned out if the workers were given a 10-minute rest in the middle of the morning, and served with hot boullion. The time and expense involved in the plan were more than offset by results.

In justice to the whole problem, however, it is necessary to state the experience of an employer of thousands, who tried rest periods and had to give them

up. It developed that these periods, so to speak, "broke the stride," and seriously interfered with the day's work. The minutes just before and just after the period saw a decline in efficiency, and the results were considered disastrous enough to warrant doing away with the rest period altogether.

The accumulated results of fatigue are exceedingly damaging to general health, and are reflected in sickness returns, lost-time reports, and the not uncommon "stale" or "done out" feeling of workers. A fatigue-poisoned condition often has grave accompaniments, as a state of lethargy and indifference. It may lead to a craving for change or excitement, with disastrous results for the individual. The employer, however, primarily interested in production, will find it important to give careful thought to this subject. Investigation may lead him to conclusions for his own industry similar to those brought out in the following report issued by the Women-in-Industry Committee, National Council of Defense, of an investigation which took place in the South. This report is valuable as demonstrating through figures, and therefore proving points which might otherwise be guessed at only.

It is in machine production, as a rule, that fatigue monotony and long hours for women workers are found. For this reason, an extremely mechanical process of manufacture was selected for the study. This was in the spinning room of a cotton factory.

The report is made up of records of four experienced operators, taken during a period of six working-days. The report goes on to say:

"In this factory the working-day is  $10\frac{1}{4}$  hours and on Saturday  $8\frac{1}{2}$ , making a week of 60 hours. The machinery runs throughout the lunch period, and operatives frequently eat at their machines. Each experienced woman cares for 8 machines, her work

consisting simply of starting them when any break in the material causes a stop.

"In this shop the girls are required to make up any time lost on account of a general breakdown of machinery. While these are not of frequent occurrence, the average time spent in the shop exceeds 60 hours a week. Records were taken at the time of starting work, and then at intervals of one hour, except for the noon period, which was one and one-quarter hours long, and included besides, whatever work the employee might turn out while at lunch. Thus we may expect the noon record to be at least 25% longer than the others.

"The following table shows the average hourly production of the four girls for each day, and for the entire week. Each girl's figure is a combination of the eight machines on which she worked.

Average Hourly Production of Units  
Four Spinning Room Operatives—Louisiana, 1919

Whole Week	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	
Average . . . . .	50	45	49	52	53	53	52
1st hour . . . . .	44	32	52	45	..	49	44
2nd hour . . . . .	36	35	31	39	..	42	31
3rd hour . . . . .	54	56	57	40	57	55	57
4th hour . . . . .	51	38	66	55	54	45	50
5th hour . . . . .	47	50	26	49	52	51	50
Noon period . . . .	64	51	68	73	56	69	66
7th hour . . . . .	51	51	54	41	59	50	53
8th hour . . . . .	52	41	47	48	58	56	63
9th hour . . . . .	51	57	50	49	52	53	..
10th hour . . . . .	46	36	43	78	38	36	..

"This table shows so many important facts that it must be discussed in some detail. The most outstanding fact is that hourly production fluctuates (excluding noon and closing hours) over 50%, so that the operative controls the output of the machine to at least that extent.

"The output during the noon-hour period is not closely comparable with the others, since this record covered one and one-quarter hours and also any production during the lunch period. Indications are that lunch time was used, in part at least, for working, on all days except Monday and Thursday. This is indicated by the fact that on the other four days production at the noon hour is 25% greater than normal. On Monday and Thursday, on the other hand, noon production is small, which is probably normal.

"On Wednesday the last hour in the day shows an exceptionally high record of production. This cannot be normal, but indicates overtime on the part of each of the four girls. The other four days show a pronounced drop in the last hour, but the high figure for Wednesday brings up the average for the week. The slightly higher figure for the first morning hour is probably due to a slight margin of overtime also.

"The average day, in this shop, consists of a rise in production till the third hour of work and then a fall till noon, with a recovery in midafternoon. The late afternoon sees another drop (except Wednesday) lower than any other point in the progression. Fatigue is clearly indicated. A 50% difference in output, on work so nearly mechanized as spinning, means a very large degree of bodily fatigue. In fact, it will be seen that the highest normal hour (excluding noon and closing hours) produces over twice what the lowest normal hour produces.

"Now let us see what an 8-hour day might produce. The average day produces 496 units. To produce as much in 8 hours each hour must yield 62 units. A 9-hour day must produce 55 units per hour. This is not impossible, since some hours do actually yield that much now. Certainly shortened hours, with better maintained output, would not mean great hardship for this plant."

By a close study of such a report, it can be seen that it is possible, in many cases, to shorten the working hours, and yet impose no hardship on the management in the way of output.

This conclusion does not invariably follow from studies of this character. But the study should be made, merely as a matter of good business. The brain-fagged executive knows how difficult it often is to make a decision in the late afternoon that comes so easily earlier in the day. The machine-worker, or the employee in any capacity whatsoever, is subject to the same kind of letting-down in capacity, the same lessening of watchfulness, alertness, energy, the same fatigue. It is good management to determine the point where fatigue makes further work unprofitable—and to cut the working day off there; or to improve methods or conditions within the plant so that the unprofitable period does not begin so soon.

## CHAPTER III

### METHODS OF ACCIDENT PREVENTION

*Safety has been a subject of study and effective practise for a number of years. Some definite conclusions as to methods and policies have emerged, and the more important of these are described here by C. W. Price, general manager of the National Safety Council.*

**A** PROMINENT safety engineer was asked recently: "What is the most significant fact which stands out in the last 10 years' experience in accident prevention in industry?" He replied: "The one outstanding fact is that we have absolutely demonstrated that we can eliminate three-fourths of all accidental deaths and serious injuries in industry."

The second most significant fact in the history of the safety movement is that accident prevention has offered the first legitimate common ground on which employer and employee can meet with mutual interest and understanding, and with profit to both.

Perhaps ranking third is this fact: That according to the experience of hundreds of industrial plants in which accidents have been reduced in amounts varying from 50% to 75%, it has been found that not more than one-third of what was accomplished was made possible by any mechanical guard or mechanical equipment—anything which could be made of iron or wood or steel.

Two-thirds has been accomplished through organization and educational methods, through reaching

superintendents and foremen and getting them convinced and "on the job" and through them reaching the workmen and getting them intelligently and actively interested in protecting themselves.

The last point is that every industry that has done efficient accident-prevention work has found it not only pays ordinary dividends, but in many cases, extraordinary dividends on the investment. Therefore, safety is rapidly coming to be recognized as an organization. It is not only good ethics, but it is good business.

The story of the experience of two large representative industries in accident prevention will prove the truth of the four statements just made.

In St. Louis there is a foundry of the Commonwealth Steel Company employing some 2,500 men. Foundries like this, in which large castings are made, are generally considered extra hazardous. The general manager gave these figures covering their accident experience during three years:

In 1916—769 men were injured and lost time.

In 1917—371 men were injured and lost time.

In 1918—124 men were injured and lost time.

During 1918, with 2,500 men working, there were three months during which not a single man was sufficiently injured to receive compensation under the State laws. In this foundry, with one of the greatest eye hazards in any industry, they have eliminated serious eye injuries by rigid enforcement of the use of goggles.

The general manager states that five years ago they were spending \$35,000 annually to cover loss from accidents; during 1918 the total cost of compensation was \$4,500. He remarked: "I have made a larger dividend on my investment in safety than I have ever realized in making steel castings."

Another example is the Omaha plant of the American Smelting and Refining Company, employing some 1,000 men, one of the 28 plants of this corporation. A blackboard told here the story that lost-time accidents had been reduced 90% in two years.

But the most remarkable feature is this: They made a record of operating from September 15 to January 10, approximately four months, with 1,000 men working under hazardous conditions, without a single one of these men being sufficiently injured to lose more than 24 hours of time. I went out of that plant with this thought in mind: "If it can be done in this plant it can be done in any plant," because the inherent hazards of this plant were above the average and the problem was largely a human problem and not a mechanical problem.

SAFETY EDUCATION SUCH AS THIS  
REDUCED ACCIDENTS 33½%

One significant thing which has happened recently in the safety field was in Allegheny County, including Pittsburgh, where an intensive educational campaign has been conducted by the Local Council of the National Safety Council, reaching all of the industries. Meetings for plant managers, safety engineers and foremen have been conducted and many thousands of workers have been reached through moving-picture exhibits held in halls and parks.

A recent report published by the Department of Labor and Industry included the statement that in this district in this country the lost-time accidents were reduced 33½%. The Commissioner states that this remarkable record is directly due to the splendid campaign which has been conducted by the local organization of the National Safety Council. The safety movement is rapidly becoming an educational movement, an effort to reach the rank and file of work-

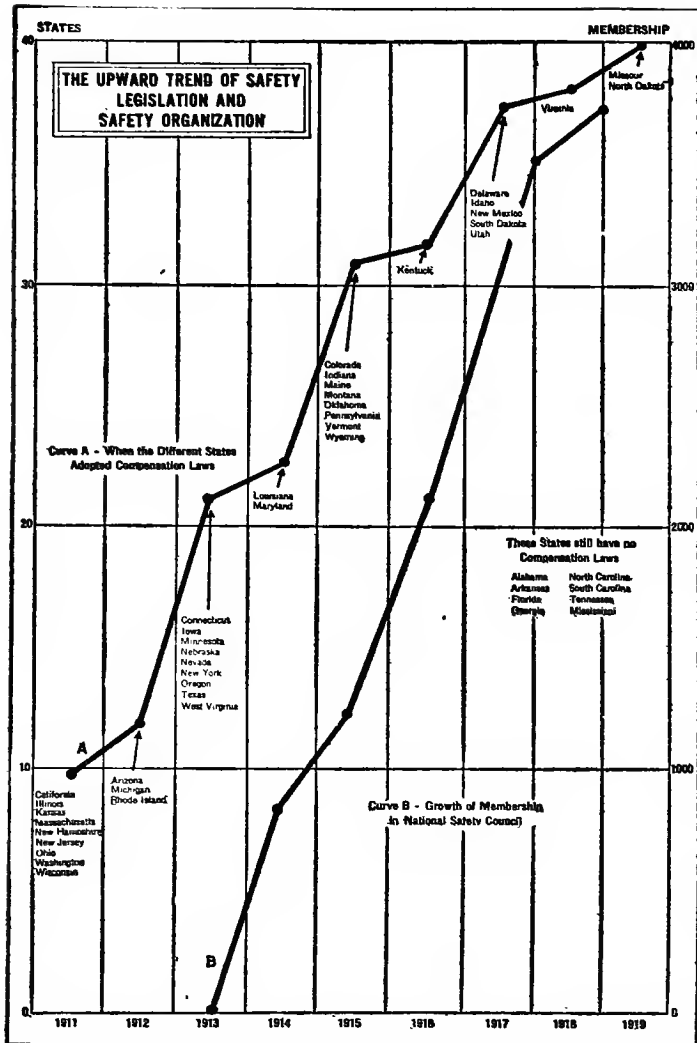


Figure 1: Active interest of employers, as measured by membership in the National Safety Council, has kept pace with public interest in safety organization, as the upward trend of these two curves shows. You will note that only 8 states are without compensation laws.

men and to get them intelligently and sincerely interested in protecting themselves and protecting their fellow workmen.

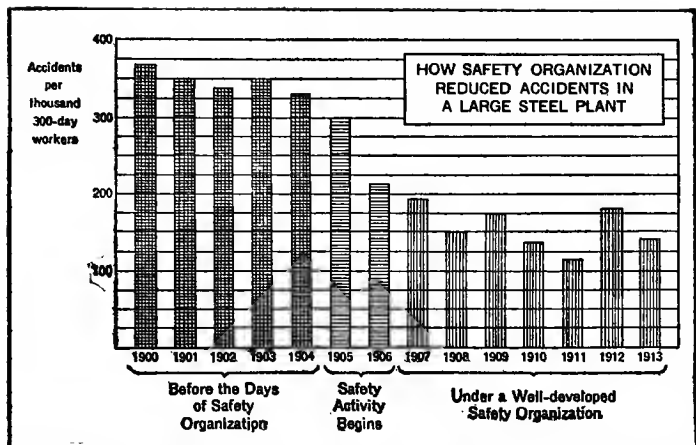
Now what has been the most successful battle formation? These five points are a summing up of the experiences of ten years in effectively reaching the workmen, and indicate the methods recognized as standards by practically all safety engineers; the indispensable things which must be done in order to get results in a plant.

What is the first of these indispensable points? The manager of the plant, the man at the top, must be absolutely convinced on safety, must put it on the map in his plant, and must get back of it and stay back of it so unmistakably that not a foreman nor a workman will doubt for a moment what he is willing to do to make the plant safe, and what he expects them to do.

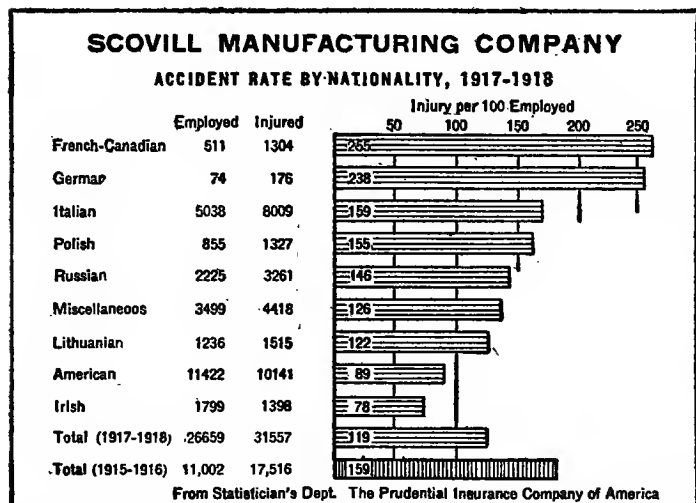
Further, the manager must convince his men by visible signs, in the form of mechanical guards, good lighting, and so on, that he is doing his full part before he can expect his men to take safety seriously or give any genuine cooperation in the movement.

It is especially important that the manager bring his superintendents and foremen to believe in safety just as they believe in production, and to give it their wholehearted and intelligent cooperation. This can be brought about by frequent conferences and by placing before the foremen the experience of other companies which have done successful accident-prevention work.

One man should be made responsible for safety work in every plant. In smaller plants he may devote only a part of his time to the work. He should be given an opportunity to go out and acquaint himself with the experience of plants that have done effective safety work.



**Figure 2:** What the right sort of safety organization has accomplished in one plant is clearly shown in this chart from a Labor Department bulletin. Note the rapid accident decrease under organized activity.



**Figure 3:** By charting accidents by nationalities employed in this manner, helpful conclusions may be arrived at in directing safety education. A study will show in what languages literature could well be issued.

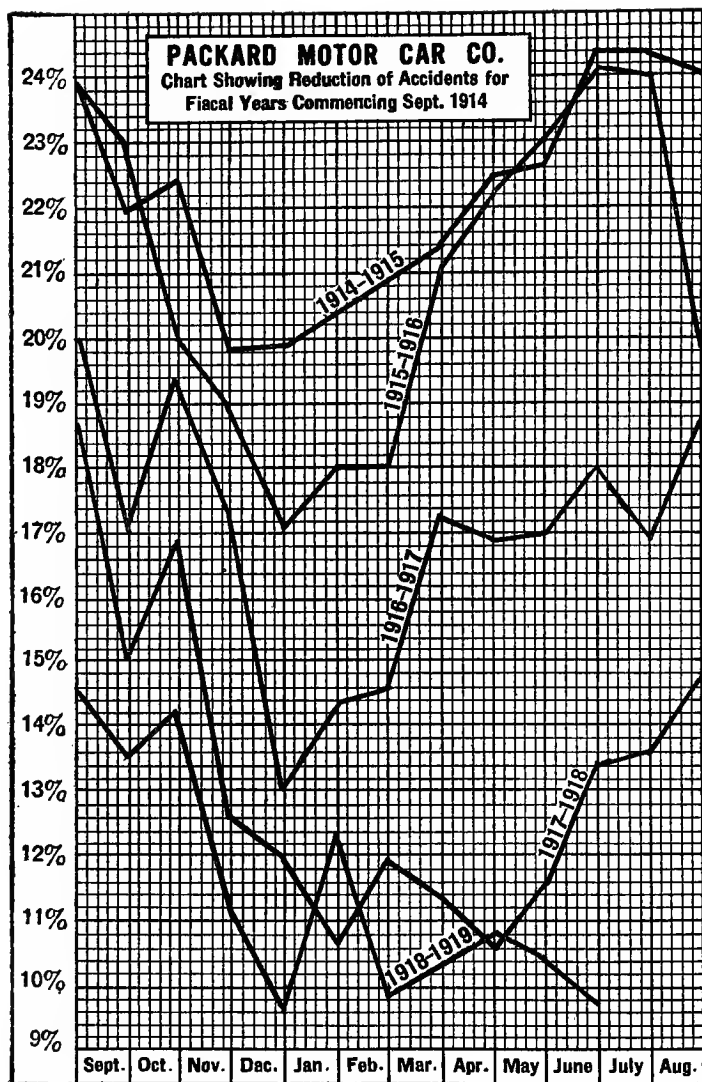


Figure 4: The decrease in accidents to the Packard Motor Car Company's employees is illustrated graphically in this chart. From 1914 up to 1920 each year's accident curve has been decidedly below its predecessor. The reason lies chiefly in the company's safety propaganda.

An effective plant committee will relieve the manager of many details, and by making thorough investigations of all important problems will enable the manager to make quick decisions in promoting safety work.

The attitude of the workmen toward safety depends absolutely on the attitude of the foreman—he is the determining factor. The foreman who is convinced of the need for safety work, who carefully instructs and supervises his men and day by day, by act and word, convinces his men that he is doing everything in his power to protect them, will get his men with him.

Discipline has a place in safety work, but in the long run a foreman must lead his men into safe habits, not drive them.

Give a workman some active part in safety work, some recognition, some responsibility—you will secure his interest. This has been the experience of all companies which have properly organized workmen's inspection committees. The one indispensable thing is that the foreman shall believe in the committee idea and constantly encourage the men in their work.

In plants where these committees have been so organized, 90% of their suggestions are found to be practicable and are adopted by the company.

When the workmen are given full opportunity to ascertain just how men are being injured in their departments, they find out for themselves what a small percentage of the accidents can be prevented by the employer and what a large percentage are due to ignorance and carelessness of the workmen. This is a most wholesome lesson.

The workmen's committee should consist of three to five men and be changed periodically. In plants with several hazardous departments it has been found advantageous to have the foreman of each department appoint a committee of three to make an inspection of that department. This plan makes the foreman

responsible for the committee and enables him to direct and encourage its work.

Pictures and stories in the form of bulletins which drive home what the workman can do to protect himself, have come to be recognized as one of the most effective means of reaching the men. Bulletin boards should be placed in each department at convenient points where the men congregate at lunch time.

The secret of a live bulletin board is a constant change—always something new, something striking. In addition to the bulletins prepared by the National Safety Council or other agency bulletins, home-made bulletins should be used covering accidents, or near accidents which actually occurred in the plant, together with interesting exhibits, such as goggles which prevented eye injuries.

## CHAPTER IV

### PUTTING A DOCTOR ON THE PAYROLL

*Proof from factory experience that a doctor's salary for full time or part time—according to which the number of employees warrants—is profitable from a dollars-and-cents standpoint. This chapter is written by G. L. Howe, M. D.*

THE introduction of medical supervision into industry has been extensive as well as comparatively rapid. As recently as five years ago it was so unusual to find a concern rendering medical service that the few pioneers were actually conspicuous. The idea of a business concern maintaining a staff of physicians and nurses for the purpose of providing medical and surgical service for its employees was both unique and revolutionary. Gradually, however, the idea became adopted by some of the larger and more progressive companies; but it was not until the rather general enactment of workmen's compensation laws that industrial medical supervision received its greatest impetus. It was then that factory medical departments sprang up rapidly.

There was nothing of a compulsory nature in this trend of events, but simply the subconscious feeling on the part of industry that medical supervision was a profitable adjunct to an organization, and that because of this it was "good business." The word "profitable" is used advisedly, because the fundamental purpose of industry is the manufacture of goods to be sold at a profit. We have definitely con-

stituted agents for engaging in philanthropy and other matters of kindred nature, but industry is not one of these.

It was not, therefore, until the industrial world was convinced in a general way that the money spent in the maintenance of a medical department was well invested that this form of public-health work made much headway. This should not, however, detract in the least from the estimate of such work by the employee, for, while business itself profits as a result of medical supervision, the workers are the direct gainers and share equally, if not to a greater extent, in its benefits.

Although it is difficult to prove in an exact way the value of raising the physical standard of the working force, the effect is clearly present and the question one that is not reasonably open to argument. Modern industry sees fit to provide employees with comfortable and pleasant working conditions, attractive surroundings, the facilities for a warm, wholesome, noon-day meal, athletics, and other benefits. They do this not from any sense of philanthropy, but because it is a hard, cold, business proposition—it pays. They know it does and that is why they do it, but if asked to show in figures the actual return to the company, they could not do so. It is very much the same way with industrial medical work; the executive has come to realize its value, but he finds it difficult to put his finger on the saving.

The purpose here is to demonstrate in a more concrete way than it is believed has been done heretofore the practical value of medical supervision in industry and to attempt to express this value in dollars and cents insofar as it is possible to do so.

Generally speaking, the activities of the typical industrial medical department embrace the following features:

1. Physical examination of applicants for employment.
2. Complete care of accidents from time of injury until recovery.
3. Emergency treatment of minor illnesses occurring during work; prompt recognition of communicable diseases; appropriate disposition of cases of serious illness developed during working hours.
4. Sanitary inspection of toilet rooms, washing facilities, dining rooms, lockers, and general factory working conditions.
5. Visiting-nurse service.
6. Health publicity.

Let us consider the practical value resulting from the physical examination of applicants for employment. Two methods are used at present. One utilizes the physical examination to determine those who are physically and mentally fit to perform any work whatsoever, recommending those for employment and rejecting the group that fails to come up to standard. Ordinarily this means that about 10% of those applying for work are not employed because of physical defects. This was the method in common use before the war.

During the war, because of the stringency of the labor market, this was replaced by the second method. This consists of excluding two classes of applicants only: those with communicable disease and those whose physical condition is such that they should not be working at all. Under this plan about 98% of all applicants are employable, provided a careful check on all transfers is maintained in order to see that defective employees are kept at suitable work.

After the war, when industrial conditions showed a tendency to become normal again and the labor supply became in excess of the demand, the first method

of conducting examinations was largely resumed. For our purpose, then, this method may be fairly used as a basis for estimating the saving resulting from the physical examination of applicants.

In this study a manufacturing concern of 1,000 employees will be taken as a type. Under normal conditions the labor turnover would necessitate the hiring of 409 new employees per year to maintain this quota (according to the experience of certain representative industries). In order to be fair, the floating element should be eliminated from this consideration. Most of the shifters in the organization will have left in six months and all of them certainly by one year's time, so that by the end of a year those who remain on the payroll may be considered as reasonably permanent employees.

#### HOW MUCH TIME WILL THE PHYSICALLY EXAMINED WORKERS LOSE?

Experience has shown that 50% of those hired are still in the employ of the company at the end of the year, so that of the 409 hired, 204 would still be on the payroll at the end of the year. The question now is, how much less time will these selected employees lose per year on account of lessened illness than would have been the case if the system of physical examinations had not been in force?

It is quite obvious that absenteeism on account of sickness will be less in this selected group for the reason that the principal causes of absence have been eliminated. The defective group commonly consists of those who are crippled, those physically below par because of malnutrition, cases of chronic disease such as heart trouble, tuberculosis, high blood pressure, and rupture, and those with diseases of a communicable nature. These are the time-losers, and if they are not employed to begin with, the result will be that

the physical standard of the working force is bound to rise to a distinctly higher level. It is not possible to say exactly how much less time is lost by a group of employees selected on this basis, but certain facts help in forming a reasonable estimate of this lost time, such as the following:

Each industrial worker in the United States loses on an average of 9 days per year because of sickness. This statement is based upon an investigation of the United States Commission on Industrial Relations and covers 1,000,000 cases. It happens to coincide with English and German figures based on an analysis of 26,000,000 cases.

To obtain further information on the subject, a questionnaire was prepared and addressed to 17 representative surgeons, industrial physicians, and political economists. The questionnaire asked for information as follows:

"I would very much appreciate an expression of opinion from you as to what would be the percentage of increased physical efficiency of a selected group of employees where this group represented 90% only of all applicants for employment?

"By the elimination of 10% of those grossly defective physically, such as cases of organic heart disease, incipient pulmonary tuberculosis, anemia, high-grade visual defects, unsanitary mouth conditions, venereal disease, elevated blood pressure, severe varicose veins, rupture, and so forth, the physical efficiency of those employed is obviously much increased. Further, it is reasonable to assume that this group will, in consequence of their better physical condition, lose less time from work because of sickness than those not so selected.

"Figures of the United States Government show that each of the 30,000,000 industrial workers of this country loses on an average of 9 days per year because

of sickness. The question is, how much of a reduction from this figure expressed in days lost per year would be present in a selected group of workers as indicated above?"

Some thought that in such groups only one-half of the usual time would be lost ( $4\frac{1}{2}$  days), while others felt that the saving in lost time would amount to  $2\frac{1}{4}$  days. The average of these 17 opinions is  $3\frac{1}{2}$  days, or, expressed differently, the loss of  $5\frac{1}{2}$  days per year instead of nine.

Working conditions in different factories vary greatly. Some factories operate on a higher wage scale and shorter hours than others as well as under modern sanitary conditions. This means better food and better housing and more time for recreation, all of which tends to reduce the average amount of time lost per year on account of sickness. This fact should in all fairness be taken into consideration, so that it is reasonable to assume that workers in this class lose  $7\frac{1}{2}$  days a year because of illness instead of nine.

Soldiers of the United States Army in time of peace lose 2.85 days per year, but there are good reasons for this. The examination for entrance into the army is extremely rigid; further, the life of a soldier is spent for the most part in the open and his habits of eating and sleeping are regular. One would naturally expect the morbidity rate to be very low.

We are now in a position to draw a conclusion. There is a difference of two days between the amount of time lost by the group of workers operating under a system of physical examination with 10% rejections and the estimated amount of time lost by people working under conditions somewhat above the average. If we multiply 204 (the number of relatively permanent employees) by two, we have 408, which is the number of days saved in our typical industry of 1,000 employees.

The next question to determine is the value of the average employee to the concern employing him, over and above the wages that he is paid. Obviously, he earns more than he is paid or the concern could not continue to operate profitably. Probably the simplest way to obtain this figure is to divide the company's annual net earnings by the total number of "employee days" ( $1,000 \times 300$ ). Of course, the organization of a company is made up, generally speaking, of two parts: the directing element and the operating element. The directing element while greatly in the minority is, nevertheless, indispensable as is also the operating element. It would seem fair in spite of the disparity in numbers to consider these elements as being equally necessary and valuable, as one cannot operate without the other. While, of course, the figure will vary greatly, it will be found that in a concern that is well managed and making money, the average worker is worth about \$2 a day to his company over and above what he is paid; therefore, if we multiply  $408 \times 2$  we have \$816, which represents the saving to the company in a year's time as a result of the physical examination of applicants for employment.

THIS PLAN CALCULATED THE EFFECT ON THE  
WORKERS' RELATIVE EFFICIENCY

There is another angle to the question of physical examination of employees and the distribution of health literature. The Postal Life Insurance Company of New York over a period of five years reduced the mortality of those taking the examination by 50%. They assumed that an influence that would produce a 50% saving in mortality would also produce an improvement of at least 10% in the physical and mental efficiency of their employees. While a 10% improvement in efficiency does not necessarily imply

a corresponding reduction in the loss of time, it is certainly reasonable to estimate this saving at 50%. The following calculation is then possible:

1000	Number of employees
<u>5½</u>	Days lost per employee
5500	Total annual lost time expressed in days
<u>.05</u>	Saving
275.00	Number of days saved
<u>\$2.00</u>	Value of employee's time per day to employer
\$550.00	Total value time saved

The average of this figure and \$816 arrived at by the other method is a saving of \$683, which seems to be a very fair and conservative estimate. But this is only one of the smaller savings.

Still another thought, but one which would have to be worked out for each individual concern, is the following: In a factory where the majority of employees are on piece-work, estimate the annual payroll per 1,000 employees. If, shortly after the institution of physical examinations, this figure begins to rise, it is fair to assume that other things being equal, the increase is due to a greater earning capacity on the part of the employees, providing, of course, that their occupations are such that physical and mental vigor can effect the quantity and quality of the work turned out. The changed conditions may very well be interpreted in terms of increased efficiency brought about by physical examination.

The second principal means by which medical supervision saves money for industry is in the amount of time saved as a result of the elimination of infection when injuries and accidents are promptly and properly cared for. The average industry engaged in the ordinary operations which are considered only moderately hazardous will produce about 836 surgical cases per 1,000 employees per year, 90% of which are probably

infectable. By "infectable" is meant cases that are capable of developing "blood poison" when improperly treated.

In order that our result shall not be too glowing and so as to err on the side of moderation, suppose we say that only 50% are infectable. This means that there would be 418 cases in the course of a year's time that are capable of infection. If 8% of this number of cases become infected with average care, it means that there are 33 cases of this sort to consider. The records of the New York State Workmen's Compensation Commission over a period of several years show that in actual practise 16%, or double this number, become infected with average, not poor, care. It now becomes a question of how much time is lost by the average worker when a cut, abrasion, or other injury becomes infected. In an effort to determine this a questionnaire was sent to leading surgeons and physicians both in private practise and in the industrial field and the records of various State industrial commissions were also incorporated in this analysis. The results, based on actual experience, show that an average of 75 days are lost to industry when a worker sustains an infected wound. Following our attitude of conservatism, let us divide this by two. In multiplying 33 cases by 37 days we obtain 1,221, the number of days lost per year in a concern of 1,000 employees. Multiplying this by \$2 per day we have \$2,442 which represents the net saving to the company as a result of the elimination of infection.

A third and very definite, tangible money saver is the reduction in the premiums on workmen's compensation insurance effected by the establishment of an industrial medical department. For instance, if the average earnings of the workers in the plant taken as a type are \$25 a week, the annual payroll would amount to \$1,300,000. A 50-cent rate, or 0.05%, would be a

very conservative estimate for even a non-hazardous industry. The annual premium in such a case would amount to \$6,500. Seventeen per cent of this is \$1,105, which is the actual allowance made when a concern provides its own medical services. As workmen's compensation laws are operative in most of the states and as the majority of manufacturing establishments insure with some carrier, the significance of these figures is apparent.

The sum of \$1,105, and the two figures previously obtained, \$2,442 and \$683, represent a total saving from these three items alone of \$4,230. This figure might in all fairness be run up considerably, but the method which has been employed here should carry with it more conviction than if the figures were used to obtain the largest possible results.

It is evident that the other activities of an industrial medical department also effect a saving. If illness is prevented by the dissemination of health information, or is cut short by prompt treatment, there is no question but that a good deal of time will be saved in the course of a year. It is impractical, however, to estimate this saving as was done in the case of the first three items. This also holds true in the case of the various other phases of industrial medical work.

There remains but one other point to complete this discussion and that is the cost of an industrial medical department. If a department serving 1,000 employees should cost \$5,000 or even \$10,000 a year, it would still seem that the money were well invested. There are so many intangible advantages and returns from a department of this sort where, in addition to the actual saving in money, there is an increase in good will on the part of the workers toward the company and where, also, much good results in a humanitarian way from such supervision.

However, service of this sort does not cost \$10,000 or even \$5,000, but in this case \$2,210 per year, or \$2.21 per employee. This figure is based on an analysis of the cost of medical supervision in 95 diversified American industries employing 479,634 persons. The compilation was made for the Conference Board of Physicians in Industrial Practise, by Magnus W. Alexander, in August, 1917. The 95 industrial plants were located over 15 states. The number of employees in each plant ranged from 141 to 36,107, the average number per plant being 5,005, while the character of the work embraced all operations including the most hazardous. This study showed an average annual per capita cost of \$2.21. Comparing this cost of operation, \$2,210, with \$4,320, the partial earnings of our typical medical department, it will be seen, therefore, that instead of being an added expense to a concern, industrial medical supervision is a money saver in addition to paying its own way, and all this quite aside from any consideration of its value from the humanitarian standpoint.

There is little question of the business value of the less tangible savings from medical supervision. The better physical condition—the higher the “tone” of the workman—alone means bigger production, because there will be fewer of those days when a cold or a run-down condition causes his work to lag.

Fair trials have shown that health supervision not only pays, but pays “big”; and undoubtedly it is the subconscious feeling that this is true that accounts in so large a measure for its extensive adoption by industry at the present time.

## CHAPTER V

### WHEN DOES WELFARE WORK SUCCEED?

*This is a subject with two sides to it. Some employers insist on sidestepping welfare work altogether; others go a long way with it. This chapter presents the principal difficulties and dangers, and also methods that have been used successfully.*

**N**OTHING in the employment relationship as such gives the employer the privilege of exercising a moral censorship over the private lives of his employees. If he undertakes the obligation, he does so as a man rather than as an employer, and the risks of the undertaking in any case are on his own head. "Welfare work," so-called, is not uncommonly considered by the employee as an unwarranted interference with his private affairs on the part of the employer. And work of this sort is attended with a high degree of uncertainty as to results unless the employer is an exceptional individual.

There is no denying that what the employee does out-of-hours has an effect on his capacity and ability while he is at work. And there is no denying, furthermore, that some employers intimately interest themselves in these out-of-hours activities of employees with great success. Neither can it be denied that other employers have tried the same thing and had their employees snarl their instant displeasure. With these thoughts in mind, and without hoping for too much or expecting too little, let us examine some types of welfare work, and try to arrive at conclusions regarding their merit.

Broadly speaking, welfare work falls into two classes, though in individual cases one class merges into the other so imperceptibly that it is difficult to make any distinction. The first class is that which unofficially presents opportunities for employees and their families to have a good time; the second prescribes a mode of living and a mode of amusement in accordance with what the employer or those entrusted with carrying out his policies happen to believe is right and desirable. It is a fact that in one famous company the high executives not only must neither drink nor smoke, but they must also give up coffee and tea; and if they wish to stand particularly well in the favor of the chief, they announce themselves convinced vegetarians! Now even this is not beyond excuse if the men occupying these positions have a full understanding of the conditions, and enter into the bargain willingly. The results from the standpoint of profits may be either good or bad, but these happen to be the conditions of employment in this organization.

Another employer, who is able to boast a record of 20 years without a strike or serious labor disturbance of any sort, attributes much of his success in this direction to what is termed, in his plant, personal-relations work or mutual-interest work. He says:

"Our workers, I know, do not like to be patronized, uplifted, or 'welfared,' any more than I do. They are independent and resent any interference with their habits of life by the employer. Many men feel, too, when a company does more for them than pay their wages, that there is a 'joker' somewhere. Often they believe that the money spent for welfare work sooner or later comes out of their pay envelopes. But after a man has been with us for a while he knows better.

"Our mutual-interest work consists of practical policies and methods of helping the worker—helping

him, not out of charity, but because he deserves it—to raise his effectiveness in his work, to better his standard of living, and thus increase his happiness and our progress at the same time.

“A man cannot do his best work if he is ill, or worried, or discontented, all will agree, and the company’s profits are decreased accordingly. Therefore, I say it is up to the employer to see that none of these conditions exist. Moreover, if we can go a step further and arouse the worker’s interest and loyalty, profits will be increased, and the worker will be better off mentally and financially.

“Service of this sort is truly mutual-interest work, as we see it. The worker is told what he is to get and what he must give, how he benefits and how the company benefits; in fact, throughout, the policy of ‘fifty-fifty,’ get and give, is emphasized.”

The methods of this employer, and of most of those who take an active concern in welfare work—or mutual-interest work, personnel improvement, industrial service, or betterment, as the same thing is variously termed—fall roughly into four classes, namely:

1. Health safeguards.
2. Recreational and social activities.
3. Improved standards of living.
4. Protection from poverty and debt.

Health supervision and safeguards have already been considered as applied within the plant and these methods need not detain us further, since when the same ideas are applied beyond the immediate working environment similar methods, in general, are used. Recreational and social activities, however, are something different.

Nobody doubts that the right sort of recreation is indispensable. Jack must mix play with work, or get to be a dull boy. The only question that arises is

as to what share the employer ought to have in directing or providing for such activities. In many concerns they are carried on by means of employees' clubs, evening parties, meetings during the noon hours, athletics and outings.

Our company has helped to organize a Booster Club, a social organization which meets once a month. The club is about half self-supporting, each member being assessed 25 cents a month. The officers of the club are all rank-and-file employees. The first part of each meeting is devoted to business, where the company's policies are discussed, and suggestions and complaints are made. The business meeting is followed by a dinner or dance or both. The president of this concern says that the club is of equal benefit to employees and management.

WHAT THE "SHOP SOCIAL CLUB"  
MEANS TO THESE WORKERS

"We have worked out the social side of our business," says another employer, "by organizing what we call the 'Shop Social Club.' Every shop man likes pleasure and amusement of some sort, and wants a place to spend his money. Too often he gets into wrong places. The 'Shop Social Club' has been launched, with beneficial results all around, to get him into the right kind of place.

"Baseball, bowling, and other healthy sports are open to the members. Outings and social gatherings are carried out at moderate cost; the breaking-up hour at all affairs is reasonable. Executives attend the 'affairs' occasionally, and a unified factory spirit has been promoted, which goes a long way toward discountenancing the feeling expressed: 'I'm only a laborer and don't count'."

In still another concern a Get-Together Club was organized for the managers and assistant managers

of the company. The club's object was to promote good-fellowship, to aid its members to speak logically and forcefully in public, and to develop interest in problems of the day.

"At the outset," says the president of the company, who was the club's founder, "the membership was very small, comprising only a group of officers and managers.

"As the idea grew, however, the first assistants of department heads were admitted, and today the membership consists of heads of departments, first assistants, traveling representatives, and office employees, who, upon written recommendations of their department heads, are accepted by the board of club governors on a ballot vote of not less than 75% of the members of this board. The board of governors consists of eight, including two officers of the club. Three of its members hold office for two years, in order to continue the policies and ideals of one administration into the next.

"Early in its career the club adopted the slogan, 'Not in time, place or circumstance, but in the man, lies success.' No expense is imposed upon members, the company bearing the entire burden. The club holds regular meetings on the second Tuesday evening of every month. The company provides supper. Programs are varied and interesting. No discrimination is shown in choosing participants. Each officer and member is expected to do his share when called on, because the main object of the club is self-betterment and self-development. It is assumed that if a man shows a tendency to shirk his program assignments, he is not in sympathy with the objects of the organization.

"Program subjects do not include problems of immediate concern to the company, but are on national or civic subjects. The idea of the members is to develop along the broadest possible lines.

"This was the original plan. At present the policy has changed somewhat, and one of the latest and most important developments of the Get-Together Club has been its entrance into educational and social service work. The company now looks to the Get-Together Club to discuss and recommend certain things along these lines.

"When a new plan for company educational work or an employment problem arises, the club often asks an authority on the subject to address its meeting. An open discussion follows, and the company often takes some action as a result."

The cooperation of employees along this line is said to more than repay the company for the expense involved. Attendance at Get-Together meetings is, of course, not compulsory. But through the years there has been a constantly increasing attendance percentage. The attendance of a typical meeting was 86.2% of the club membership. Allowing for sickness and members who were out of the city or traveling, this was very high. The attendance seldom drops as low as 50%.

When it was found that this organization did not properly embrace the factory men, although some were members of the club, a Foremen's Club was organized. This is a separate organization, but built on the same lines, and there are often joint meetings. These clubs are heavily credited for much of the enthusiasm shown by employees.

Another employer throws open the service rooms of the factory on Wednesday evenings for workers' parties. Initiative in this always is taken by the employees. Any department or departments wishing to stay any Wednesday evening for supper and entertainment afterwards, may do so by booking a date in the office of the welfare or service superintendent. Committees consisting of nine members

each are then appointed by the foreman or foremen. These committees are always three in number—a committee on arrangements, a refreshment committee, and an entertainment committee. The affair is entirely in their hands, although the welfare head stands ready to help if asked.

Friends and relatives are welcome at these evening gatherings. There are music and recitations, and workers of the different nationalities dance their folk dances. Frequently, the evening's fun is increased by a pantomime, an exhibition of "fortune telling," or some other "stunt" by the workers. Managers, superintendents, foremen, and their wives, are present on these various occasions and better acquaintanceship is thus made possible, as well as an increase of general friendliness and good will. These informal parties usually last until 9 o'clock.

THIS FIRM GOES A STEP FARTHER IN  
PROMOTING SOCIAL ACTIVITIES

Cheney Brothers provide a large brick building—Cheney Hall, it is called—for the free use of employees. The hall is in use by them almost every night during winter months.

A large recreation building also has recently been completed by this company and contains a complete gymnasium, a swimming pool, bathrooms, a small hall for dances and amateur theatricals, lounging and writing rooms, lunchrooms, and kitchens, all for the use of employees of both sexes. The company also maintains a free library of 10,000 volumes for the use of workers and their families. The library has a reading room well stocked with papers and magazines, and a children's department under the care of a trained attendant. These efforts give an idea of how far along this line of activity some companies have found it practical to go.

Noon-hour meetings seem also to produce good social and recreational results in many instances. In one concern "movies" selected by an employees' committee are provided at such meetings. At another, informal talks are given by department managers, with an occasional outside speaker. In many concerns where women are employed, part of the noon-hour frequently is devoted to dancing, with all facilities furnished by the employer.

Athletic sports are also a most popular form for recreational activities to take. Few concerns of any size do not promote employee athletic contests of some sort, as baseball, basketball, volley ball, tennis, bowling, swimming, and so on. Where a concern does not have its own gymnasium, the use of a Y. M. C. A. or high-school gymnasium usually is easily arranged.

One St. Louis concern provides its girl workers with a swimming pool, where many of them come every noon. An expert swimmer is the attendant in charge.

Company outings are also popular with many concerns, usually taking the form of picnics, field days, and the like.

None of these activities, it is obvious, tread on such intimate personal ground as when the employer undertakes some improvement of the employees' standard of living. The dangers of interfering in an unwarranted way have already been suggested. In spite of the dangers, however, some employers—and it must be admitted they follow up their policy with at least a measure of success—insist that it is very clearly their business duty to know all about how their workers live, and to take action thereon, since home conditions can help or hinder production to a high degree. Here is what one employer of this persuasion says:

"The physical conditions of a concern may be the best that it is possible to obtain; sanitation and ven-

tilation may be as nearly perfect as experts can devise; restrooms, lunchrooms, recreational facilities, shower-baths, and other comforts and luxuries may be provided by an employer who aims to look after the general welfare of his people. Hours may be reasonably short, and wages may be high. And yet, the employer who is intelligently attempting to reduce his labor turnover and to improve the personnel of his organization knows that these steps alone, while essential, may not entirely suffice. He recognizes that the health and well-being of his people are fully as dependent upon conditions outside the concern as upon those within it. He recognizes, too, that outside conditions constitute fully as important factors in workers' steadiness and efficiency as the company conditions.

"As for the 'right' of the management to interest itself in the outside lives of workers, I believe it is not only a 'right' when it affects the worker in his work, but it is actually a duty which is a natural outgrowth of executive responsibility. For example, interest in the health of the worker cannot truly be effective unless it attaches itself to the worker at all times. Unfortunately, most workers are as ignorant of health laws as babes in arms. It is ideal that we all should manage our own lives. But all will admit that before we can manage our own affairs we must be taught how. I know that by reducing the causes of inefficiency I help to make better citizens and a more stable and steadily prosperous body of employees, and I consider it my duty to use every honest means to secure such a desirable end."

Tactful suggestions from a visiting nurse, welfare superintendent, or company doctor; the ownership of a home; the cultivation of a garden—these are some of the directions in which employers' interest in these out-of-doors activities turn. To encourage

employees to raise gardens, one concern awards prizes for the best results obtained. Flower gardens are included in the contest as well as vegetable gardens. Inspection trips are made by company representatives at regular intervals. The prizes usually offered are house furnishings, silverware, dishes, aluminum ware, porch furniture, and so on.

"By arousing workers' interest in home gardens," says the head of this concern, "we help them become more contented with their surroundings. There is a moral influence at work vastly more important than the gratification of the senses. The gardens are a source of quiet and pleasure, and do much to repress the wearying excitements of daily life. In these days of busy life we often work until we become irritable and morbid, and we need calming influence."

HERE A GARDENER'S ASSOCIATION ACCOMPLISHES  
THE DESIRED RESULTS

In another concern every year a gardeners' association is organized. Everything in connection with the plan is conducted on a business basis. At the beginning of the season the services of an expert agriculturist are secured. He acts in an advisory capacity. Seeds and implements are bought through the purchasing department of the company. To make sure that nobody is working on the wrong track, members of a company garden inspection committee make periodical examinations of the gardens and offer constructive criticism.

At the end of the season the garden association holds a prize contest. Cash prizes of \$3, \$2, and \$1 are given for the best vegetables grown. While the prizes in themselves do not amount to a great deal, they are an incentive.

The mental and moral atmosphere of the worker's home has an untold influence, of course, on the effec-

tiveness of the individual. Here, too, the employer usually treads dynamite if he attempts remedies. But even so, if suggestions are tactfully made by someone in whom the worker has full confidence, offense may not be taken; and a great good may even be done.

A healthy worker, a moral worker, a worker with adequate opportunity for sane social and recreational activity, is obviously, other things being equal, a better worker than he who is or has none of these. So, too, with the worker who is free from debt and perpetual financial worry. Many companies take steps to protect workers and their families from poverty and debt, and thus to relieve them from worry. These steps usually materialize in the form of (a) mutual benefit societies; (b) insurance provisions; (c) pension plans; (d) cooperative stores; (e) savings and loan associations.

Most mutual benefit associations, it appears, are similarly organized, the purpose being to provide a definite income for employees who suffer illness or disability not coming under the provisions of workmen's compensation laws. The regulations of the mutual benefit association in one concern explain the purpose in these words:

"By the terms of the state compensation act, companies will provide doctors and hospital service, and compensation will be paid for total disability, accidental death, loss of fingers, toes, eyes, hands, feet, and so on, in accordance with the scale of benefits listed by the act.

"Benefits are paid for all ordinary disability resulting from accidents incurred on duty, at the rate of 65% of wages, but dating from the eighth day of disability. If the disability lasts four weeks or more, the first week of disability will also be paid for at the same rate—65% of wages.

"It should be remembered, however, that nearly one-half of our accidents cause less than seven days of disability. Therefore, only about one out of every twenty injured workers would receive under the compensation law daily benefits for the first week of disability.

"The Mutual Benefit Association under all circumstances will pay full benefits for the first week. Therefore, the advisability of membership in it is manifest."

Usually the company pays the overhead expense of the benefit association, consisting chiefly of providing offices and furniture, and perhaps one salaried official, usually a secretary. In addition, most companies contribute a certain amount to the association fund. One concern contributes a dollar a member on the average membership for the year. Other employers are of the opinion that the best results are had when the company offers bonuses to the association for accomplishing certain definite tasks. One employer who advocates this plan says:

"We made our campaign for new members a game where each member became a salesman watching for an opportunity to 'sell' the association to a new employee. As a result of this plan, our membership doubled in the month following its adoption."

These mutual benefit associations may be managed either by the management or the employees alone, or by the management and employees together. Figures from approximately 500 worker mutual benefit associations indicate that where the association is operated by the management without the cooperation of employees, the percentage of members to the total number of employees averages 75%; with the employees entirely operating the association, the percentage varies from 2% upward, with an average of 30% of total employees; and with joint employee and employer management, the average is 60%.

The first plan appears to be most successful numerically but in explanation of the figures it must be remembered that under management operation membership may be practically compulsory, whereas with either of the other arrangements membership usually is purely voluntary.

One association pays sickness or death benefits to its members, aside from what the company does under the state plan in accident cases. So, between the association, the state insurance plan, and the company's own plan for life insurance, worries on these scores of possible sickness or injury are largely removed from employees.

#### HOW CAN THE ACTIVE INTEREST OF THE WORKERS BE SECURED?

Getting the support of employees is, of course, the big problem of mutual benefit associations. Voluntary membership is most desirable, and in many instances where membership in the association is compulsory, real employee interest is found to be wholly lacking. When members come to look upon membership in the association as a burden which they must carry in order to hold their jobs, the association's value to the concern is practically lost; and whatever value it may have for the members is minimized because they do not recognize that value.

In one association, dividends proved to be a big membership stimulant. The cash reserve here was increasing very rapidly and it was felt that it was unfair to the members to retain this money when it was not needed by the association; and so it appeared right and proper to declare a dividend equivalent to two weeks' dues.

To save bookkeeping, this dividend was paid in cash. Each member received an envelop containing his dividend and a message stating that the association was

prosperous, hence the dividend. As a result, membership went up about 50% in the next six months and the initiation fees from this influx of new members put into the treasury more money than the dividend had taken out.

Most associations do not pay benefits for disabilities of less than three days, because the number of workers who cannot stand without inconvenience the financial loss of three days' illness is few. Much difference of opinion exists as to the question of the total time of disability for which the benefit association should pay. The most common period is 13 weeks, although some associations pay for 26 weeks. Assuming that the uniform dues are 10 cents a week, with 3 days' waiting time, it is possible to pay benefits of \$1 a day for 13 weeks. If the waiting time is increased to 7 days, the benefits can be increased to 19 weeks without any change in dues. If the waiting time were made 13 days, as in most compensation laws, the benefits could be paid for 26 weeks.

Many benefit associations provide what have been called "step-down" benefits; that is, \$1 a day for the first 13 weeks; 75 cents a day for the second 13 weeks; 50 cents for the third 13 weeks; and 25 cents a day for the balance of the year. Others pay small benefits as long as the member continues disabled.

A "step-down" plan usually requires dues of about 14 cents a week from each member. If it is desired to extend these benefits as long as disability continues, it is necessary to add at least 2 cents a week to the dues. These rates are based on a factor of safety of one third. Many employers prefer "step-down" benefits, but experience indicates that it is usually difficult to make employees see the advantage of providing for long-time sickness.

Regular dues must be sufficient to take care of fluctuations in benefits. In this way the association

treasury is kept intact and there is no need for assessments. Ordinary fluctuations are not extreme, and with a fair-sized treasury fund, an association usually is able to operate successfully with dues only slightly in excess of its average requirements.

Association funds are collected either by assessment or by regular dues. The second method appears far more satisfactory in every way, since each member knows in advance just how much his dues are to be and when they are to be collected.

Group life insurance—that is, insuring all of a company's employees under one policy—is being taken out by many concerns to remove employee worry about family security. In some instances the entire cost of the insurance is absorbed by the employer, while in others collections are made through employees' pay envelopes for part or all of the premiums. The amount paid at death varies. Sometimes it is based upon the employee's salary. For instance, in one concern the company policies provide for the payment of an amount equal to one year's salary of the deceased, but not to exceed \$1,500. Other concerns have policies providing for the payment of the same sum for each employee; or varying sums, depending on the length of service.

In some instances, life insurance is sold through savings banks at the lowest possible cost to wage-earners. This movement has developed through the cooperation of business men who have established agencies in their concerns so their employees may have the advantages which this form of insurance affords. At the present time there are nearly 300 such agencies. Among companies maintaining agencies are the United Shoe Machinery Company, Dennison Manufacturing Company, New England Confectionery Company, George E. Keith Company, and the Eaton, Crane and Pike Company.

Several governments have adopted plans for compulsory insurance to protect against sickness of employees. Statisticians estimate that sickness costs the workers of this country at least \$800,000,000 a year. Some laws proposed on this point call for workers to contribute 50% of the cost of the insurance, employers 40%, and the state 10%. Under these various laws a definite schedule of benefits is provided, including medical and surgical attendance, a cash payment during incapacity for not more than six months in any one year, and a maternity benefit for working mothers.

European experience indicates that 2% of the total wage-bill expense is the cost to the employer of sickness. Some American employers who oppose the plan claim that the cost will run to 3%. The idea is, of course, still in an experimental stage.

#### THE FUNDAMENTAL AIM BEHIND ALL PENSION PLANS

Pensions are in operation in many concerns and many employers have found them well worth while all around. One fundamental aim of pension plans, of course, is to build up a permanent staff of employees. There are two principal types—contributory and non-contributory. The former is supported in part by the company and in part by optional or compulsory contribution from employees. The non-contributory plan, under which the employer provides the entire pension fund, is the more common.

Another type of industrial service work is the operation of employees' cooperative stores, designed to help employees reduce living costs. Goods sold include fuel, staple groceries, and working clothing at the head of the list, with a tendency away from perishable items or such as are not in general demand. One company's clothing list includes overalls, jump-

ers, shirts, caps, sweaters, handkerchiefs, socks, gloves, rubber boots, and rubbers.

The buying for employees at wholesale is sometimes handled by the company, and sometimes by the workers themselves. The company usually aids at least to the extent of providing space for the store, and light and heat. Where the company runs the store, it may be operated at cost or with a very small profit.

At the White Motor Company, where the store is entirely operated by the benefit association, the profit amounts to about \$500 a month. Of this amount 70% goes to the benefit fund and 30% to the band, to athletics, and other worker activities. This profit is realized by selling goods at cost plus 50%. Candy, cigars, and tobacco, however, are sold at regular retail prices. The association pays one attendant's salary, and the company donates light, rent, and heat.

A glance over the shelves at this store reveals the following articles: rice, canned goods, staple packaged groceries, hams, bacon, tobacco, candy, pipes, matches, electric lamp bulbs, gloves, overalls, caps, eye-shields, automobile tires, and tools.

Another way of handling purchases for employees is through a cooperative association organized expressly for the purpose. Such an association was organized by one concern to sell groceries and provisions to workers. Its store is operated about as any grocery store is, buying supplies from wholesalers and jobbers and retailing them to the shareholders. It is a part of the plan of this association to apply the net profits, after making allowance for depreciation on stock and fixtures, toward a 5% dividend. After doing this, a reserve fund of 2½% is set aside. The remainder is distributed to the members according to the amount of their purchases during the preceding six months.

Savings associations among employees are nowadays common and it is unnecessary to go into detailed description of them. A few simple policies, it appears, underlie their successful operation; such as—

1. An employee must be able to join at any time.
2. Any amount may be deposited.
3. Money can be placed, in the individual's name, in any bank of his choice.
4. The amount regularly deposited may be canceled or changed by the depositor at any time if due written notice is given.
5. The bank shall pay the regular rate of interest direct to the depositor, and not the club.
6. Money may be withdrawn in part or in whole without reference to any officer of the association or company.
7. On each payday the company cashier hands to the association representative a check for each bank, covering all the deposits to be made in each bank, together with a list of the depositors and their respective amounts.
8. Deposits actually are made in the designated bank by the association representative.
9. Periodic meetings of the association are held to stimulate ambition to save and to discuss insurance, real estate, building and loan, and other investments.
10. The association may develop loan or other features as desired. It must constantly keep in mind that the scheme is not an end in itself simply, but a means to a larger end—thrift in all senses of the word.

It is self-evident that all the plans herein described are of little avail if the worker's home life is shiftless. Hence the need for a community approach also, through the church, school, Y. M. C. A., Y. W. C. A., associated charities, social settlements, foreign societies, and other social agencies, as well as municipal

health and other departments. Whether the employer should take an active interest in bringing these things to the employee, is at best doubtful. The work may be far more effective if backed by the employer merely *as a citizen*.

One employer sums up his ideas on welfare work as follows: "We look upon our industrial service, or welfare department, as a production department—a department working for the best production of next year and of five and ten years from now, instead of for the production of today and tomorrow, as does the planning department. Our motives are not philanthropic. Everything we do in this department is promoted fundamentally to increase production. If the worker is comfortable and contented, our production and our profits are increased. And when, in accomplishing this purpose, we bring more sunshine and happiness into the lives of our co-workers, and thus help to make this world a better place to live in, we feel that our efforts have been exceedingly well spent."

And this will probably serve as about the best possible expression of the point of view of those employers who believe it is their business duty to provide welfare work. Not all employers agree that it is part of the function of the management. Whether it is, and if so, what the welfare work shall embrace, is a decision resting with each employer.

## CHAPTER VI

### ENCOURAGING EMPLOYEES TO SAVE

*Many undesirable situations may be avoided in the plant that has a thrifty lot of workers. This chapter describes a type of employer-encouraged thrift that gets away from many of the dangers of paternalism.*

**A**SK any manager whether saving money helps a man to do better and more conscientious work and he will say "Yes." We take it for granted that a man who owns his own house will not be swept away by every current of unrest but will, on the contrary, regard the company for which he works as an aid to his personal prosperity and not as a natural enemy. There is a certain fellowship in the business of making money.

Samuel L. Vauclain, the president of the Baldwin Locomotive Works, will not raise a salary unless a man has first demonstrated that he can save money on the salary he is then getting. The advantages of saving money are so numerous and obvious that the odd part is that so few save.

The average man does not save because it is commonly represented to him that the process of saving is purely one of self-denial; he fails to have driven into him that saving is not negative but surely positive, or that it has any other than the immediate effect of accumulating a nest-egg. That is reason number one. The second reason why men do not save is that only the man of strong determination can save, for the

means of saving that are now afforded to the average worker are so cleverly awkward and inconvenient that only the hardy saver will continuously overcome them. The savings bank does not help a man save—it is an institution for husbanding money that has already been saved. The only general saving is that which becomes automatic the moment that the resolution to save is made.

It is not to be expected, and experience conclusively shows, that the urge to save is not normally continuous and that unless the single initial impulse to save may be advantaged, continuous savings will not take place.

The saving has to be automatic and thus has to take place before the saver gets his hands on the money—for otherwise the exercise of the will to save must precede each deposit. This makes it necessary to deduct an amount from the pay envelop on the standing order of the wage-earner—which is a nuisance. Few employers care to undertake the management of a savings fund—and for several good reasons. The first is that they are manufacturers and not bankers. The second objection the executive makes is that there is a degree of paternalism in withholding money “for the man’s good.” This is objectionable to most employers and to nearly all workmen.

A large number of employers were canvassed on this point and they, with very few exceptions, declared strongly against any such paternalism. In fact, any plan in which the employer “takes charge of the savings” may do more to discourage than to encourage true thrift. The point is to have the worker arrive at the decision to save by his own mental processes and through the exercise of his own free will, and then for the employer to provide some facility which may have all the advantages of collection at the source and none of the disadvantages of paternalism.

One cannot teach thrift without knowing what thrift is and the part it plays in industry. Thrift is not merely the antipodal condition to extravagance. Thrift is the source of all capital—it is the individual margin between income and outgo. Only by the exercise of thrift may the worker become a capitalist, and we all agree that when society is composed of worker-capitalists the idea of the class war will fall because there will be no classes for it to live upon. But there is even a bigger reason for saving and one that industry will soon have to consider most seriously. It is this:

The worker's wage is increasing and the amount of free money for investment is decreasing. It does not take a long view ahead to see the day when productive capital will be hard to obtain unless the worker has by that time become a capitalist and returns a part of his wage to the promotion of industry. That is a fact to be reckoned with.

THESE PLANS GO FAR IN HELPING  
THE WORKERS TO SAVE

Spreading the doctrine of thrift among the wage-earners is nearly the biggest job ahead of forward-looking managers. Practically, how can it be done?

Almost any worker will agree without argument that saving is a good thing. The next step is not much more difficult—to get him to agree to save a stipulated amount each week. The good resolution is easily formed—the pledge easily signed.

But putting it into effect is not easy. The wage-earner goes to the savings bank once, or twice, or three times. The next payday it rains. He does not go. The new habit is broken and that man will not easily renew his good resolution. For good resolutions at the best are fragile, and not easily mended once they are broken.

It was with the thought of preserving the resolution to save that the thrift program of the National Thrift Bond Corporation was formed. Agents are appointed among the workers to solicit the resolution to save. The convert signs a pledge to save and this pledge constitutes an order on the employer to insert in the pay envelop, as a part of the wage, "thrift receipts" to the amount of the determined weekly saving. Experience has taught that a man getting from \$12 to \$16 a week can save \$1; from \$16 to \$25 a week he can save \$2; and if he earns more than \$25 a week \$5 will be a minimum.

The delivery of a thrift receipt with the pay has all the advantage of payroll deduction systems without the great disadvantage—the objection of the wage-earner to having any deduction from his wage. The working man thinks mainly with his hands and his eyes. He has been taught the use of machines that depend on keenness of vision and certainty of touch. His habit of thought is not concerned with written things. It is no discredit to his intelligence that figures mean little to him. What more natural, therefore, than that he should count his pay by what he finds within the envelop rather than by what is written on the outside of it? The thrift dollar which he finds within the envelop counts as a part of his pay exactly as the spending dollar counts as a part of his pay. He knows he can always turn it into money at need. Many workers give their thrift receipts immediately to their wives; women appreciate savings more than men.

When he has received \$10 in thrift receipts, the wage-earner exchanges them for a thrift bond which bears interest at 3%. This exchange is made with an agent of the National Thrift Bond Corporation at the plant. The agent performs a much more important function than that of exchanging thrift receipts for thrift bonds. He explains to the wage-earner what a bond is, shows

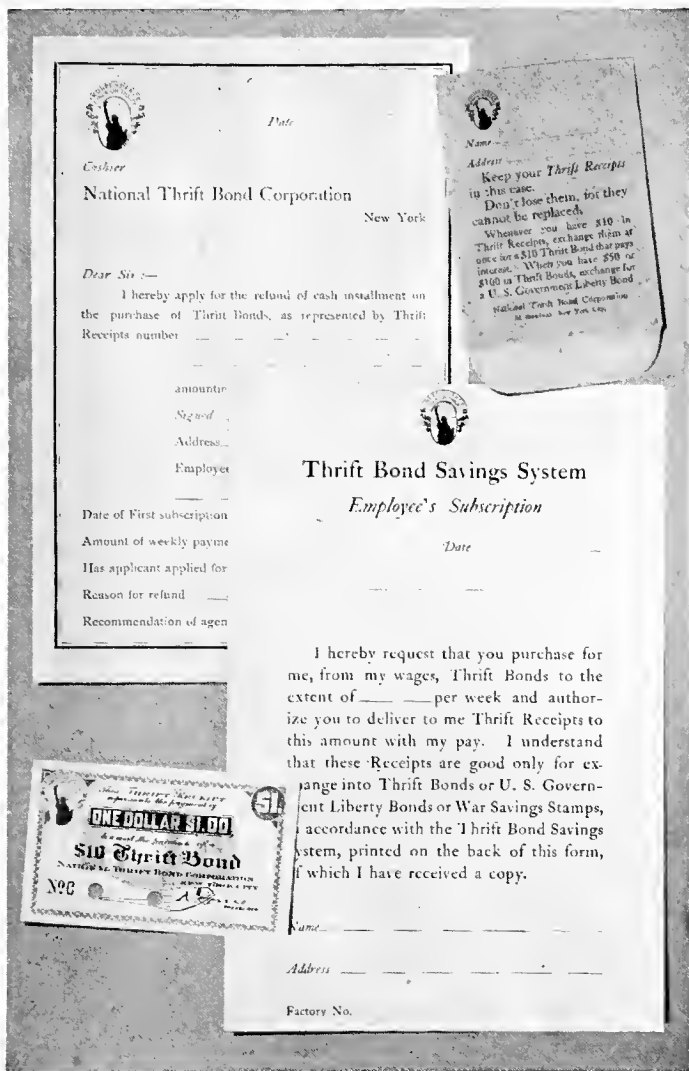


Figure 5: During the war workers learned how to save. They grew accustomed to deductions from their pay, and the words "bonds," "coupons," and "interest" acquired a new meaning. Here the thrift dollars in his pay envelop tell the worker he actually gets all he earns.

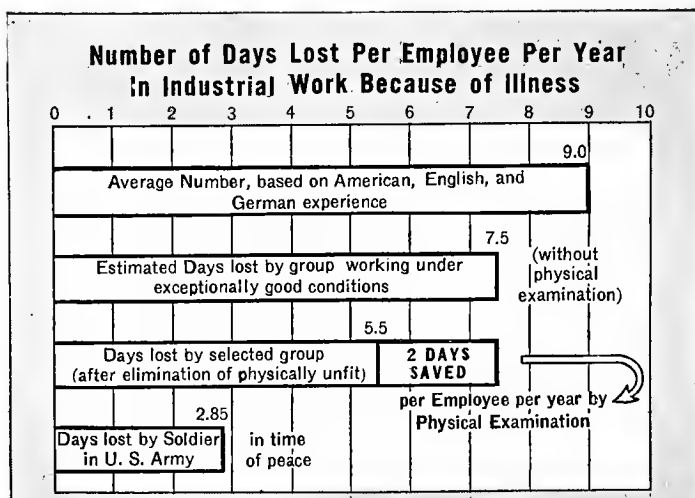


Figure 6: Weeding out and properly classifying the physically deficient adds two days a week to every worker's productive time. Certainly such a saving is worth while. Chapter IV is devoted to this subject.

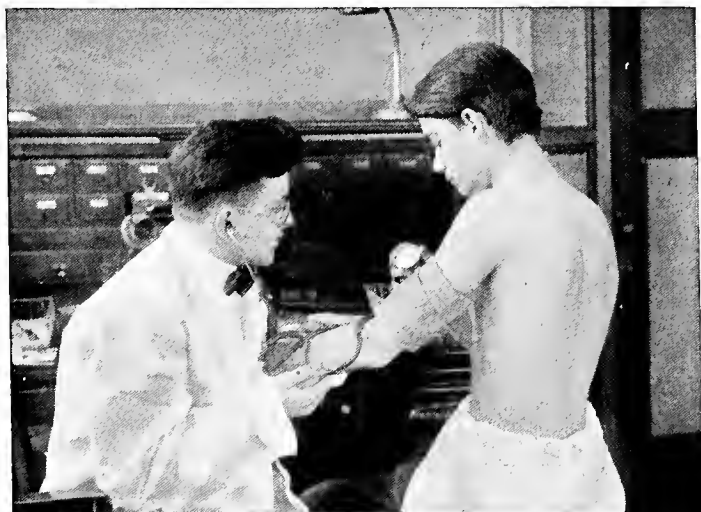


Figure 7: The value of a physical examination of prospective employees is being more fully recognized by employers every day. It is estimated that 10% of all applicants are disqualified under the test.

him the interest coupons and tells him how they should be cut off as they fall due. The worker thus receives an elementary education in investment as distinguished from speculation.

The thrift bond is an engraved document, not literally a bond, but a certificate of ownership in a fund of Federal, State, and City bonds, very strictly limited as to safety, and held by a trustee. The face of the thrift bond reads for \$10 and it bears three 10-cent coupons for every year of its life, the maturity corresponding with the maturity of the obligations in the trust.

The whole machinery of bond ownership becomes plain to the wage-earner by precisely the same mental process as that by which he has learned other things—by operation. He comes to know the value of interest coupons by cutting off and cashing them, and interest, in many instances, for the first time appeals to him, not as a theory but as a fact.

Almost invariably conducting his affairs on a cash basis, those forms of credit which serve to carry the family over emergencies are not available to him. His savings must be in a form in which they may be promptly converted into cash. It is equally important that this conversion into cash should not involve a stoppage or even interruption of the regular weekly saving, nor should the saver be made to feel that in the use of his savings he is in any way backsliding from his resolution to save.

It is equally as important, on the other hand, that he should not find it so easy to convert his savings into cash as to encourage him to casual expenditure. If a dollar thrift receipt could be instantly turned into money or spent at the nearest shop as a dollar bill can be spent, little would be accomplished.

For this reason the thrift agent at the plant does not cash thrift receipts or buy back thrift bonds on

demand. He asks the saver to apply in advance for the sum he is likely to need. This application is payable one week after date.

If an actual emergency, such as accident or sudden illness, causes instant need, the immediate payment or refund applications may be made. These immediate refunds are governed by rules laid down definitely in each institution after study of local conditions, and in conference with the employer. Usually the o. k. of the foreman, head of department, or employment manager is the only requirement.

The thrift agent in the plant performs many other useful services for the employees, as, for example, lending them at 6% such money as they need on Liberty Bonds, and allowing them to pay off the loan by additional subscriptions at \$1 a week or more to the thrift-bond savings system. He becomes a friend of the men.

#### HOW MANY OF YOUR WORKERS HAVE ACTIVE SAVINGS ACCOUNTS?

Figures on the number of bank accounts in the country as compared with the number of individuals are extremely deceptive, but it is doubtful if one wage-earner in 10 has an active savings account. Every extension of banking facilities in the direction of the wage-earner has succeeded far beyond expectation. Even without solicitation, the mere offering of savings-bank facilities in industrial establishments, in states where this is permitted under the banking law, has been found to be successful.

On the other hand, solicitation of savings of industrial life insurance, which is a form of thrift, has produced invariably important results. There is no better example of the force of solicitation than the success of the industrial life insurance companies in Massachusetts as against the unsolicited industrial

life insurance offered through the savings bank under the protection of an especially favorable state law at a rate about a third lower than the commercial rate.

In 1917, the State of Massachusetts put in force 1,250 new industrial policies, while in the same period the new business written by the industrial life insurance companies amounted to 124,000 policies—roughly 100 for one. This great force of solicitation of thrift is constantly at work in the plant through the thrift agent. The subject is kept alive and interesting. Its benefits are constantly brought forward.

One of the very important facts developed during the last two years has been the advantage both to the employer and the employee of the operation in the plant of an independent savings institution as opposed to the operation of a savings system as a part of the employer's own business.

Whether or not his feeling is justified, the employee resents rather than appreciates any effort on the part of the employer to induce him to leave a portion of his wage in the employer's hands, as savings. He does not wish his employer to know how much he has saved. He objects to being obliged to go to the employer or to a fellow employee when he wishes to withdraw a part of his savings. He appreciates the employer's willingness to accept his instructions to include with his pay thrift receipts to a stated amount, but once he has his pay envelop, he wants to feel that the transaction is closed and that the employer recognizes the employee's absolute ownership of all of his wage, whether or not a part of this wage be in the form of money saved.

The really important feature of the whole thrift-bond program is that it gets away from paternalism—therefore thrift independence. No forward-looking plant owner today cares to assume an attitude of paternalism. He wants the people in the plant to do their

work for the same reason that he does his work and not out of gratitude for the support they receive.

When one can attain this measure of independence among his people—an independence based on knowledge and not on ignorance—there is then no difficulty about getting on a basis of fair dealing in which each side gives and takes. For, inevitably, the possession of money will teach a certain amount of economics to the worker, and it is in the direction of mutual economic understanding between employer and employee that the road to better industrial relations lies.

## CHAPTER VII

### PLANS FOR HOUSING EMPLOYEES

*Some practical ways to provide living accommodations in sufficient quantity and of a quality that assures employees decent home surroundings.*

**A**S early as 1830, many of the factories in England and some in the United States were meeting the industrial housing situation by building workmen's homes themselves.

The problem seemed simple in those days. Labor was abundant, and it was not necessary to offer workmen good houses—just houses were quite sufficient. A factory that could supply any kind of living quarters could get all the help it wanted. The possibility of increasing efficiency and profits by seeing that employees were housed well, disturbed no one. It was hardly even thought of in those days.

All the requirements were met by the cheapest kinds of construction, and as a consequence the typical industrial housing of the period was ugly, crowded, and unsanitary.

A few employers did try to do better by their people. And as early as 1845 there was a movement, backed by many widely known men and women, for better homes for workingmen. But all the effort in that direction, whether it came from factory owners or others, was prompted by altruistic motives. Good housing was seen as a humanitarian proposition rather than as an economic enterprise which would more than

pay for itself in the bigger returns which comfortably housed workmen would give.

In recent years, the humanitarian and economic points of view have tended strongly to coincide and the movement has taken on the importance that movements always take on when the economic motive is uppermost. Employers have more and more been looking upon good housing as a straight business proposition.

During the war, the bare announcement by the Government of plans to build homes near certain war industries was enough to reduce their labor turnover materially, and the progress of construction work was accompanied by still further reductions. These men had been getting the highest war-time wages, and they worked short hours. Yet the turnover among them had been in some instances upwards of 300%. What the best of working conditions had failed to do, good homes—even the hope of getting good homes—did.

"The effect of good housing is instantaneous," one manufacturer who has built a village adjoining his plant, says in this connection.

"It's the environment, the psychology of the thing," he adds. "In these homes, the workmen and their wives and children feel that they are somebody. They attain self-respect and pride and ambition. They dress better, live better, are happier, and take pride in saving money instead of frivolling it away. Their cultural wants are stirred and likewise their ambition to gratify them.

"And our employees work better!—they make better wages on piece-work. Workmen who live in these homes soon become from 20 to 30% more efficient in their work."

The attractive homes for workers in this village rent for approximately the same amount workingmen in

the vicinity ordinarily pay for the poorest accommodations, and yet the enterprise has been entirely self-supporting.

Hardly any two housing projects have been financed in the same way. Sometimes the manufacturing corporation does the work with its own funds. Sometimes it organizes a subsidiary company to carry on this work.

Again, a corporation may establish a revolving fund from which attractive loans are made to employees for building purposes.

Or, the whole industrial community may buy stock in a housing corporation which has a revolving fund.

SHALL THE HOUSES BE RENTED  
OR SOLD TO WORKERS?

The manufacturer just quoted organized a separate corporation in which not only he and his associates but other local people who were interested in the progress of the community took stock. This corporation builds the houses and rents them to the manufacturing company, which in turn subrents them to its employees. The rents are on the basis of 10% of the cost of the house, which allows the construction company a fair return on its money. The manufacturing company takes no profit on the enterprise. In exceptional conditions, as when there has been some misfortune, it takes small losses.

Some manufacturers prefer to rent the houses they build and others to sell them.

Certain classes of labor, especially unskilled, as a rule would rather rent, because in this way they feel less tied to the locality in which they are working. On the other hand, if the company has a reputation for fair dealing with employees, the opportunity to buy a good home may be all that is needed to make the workman settle down.

In several cities a number of manufacturers have joined in a common housing corporation, in which bankers and other outside local interests have also taken stock. And in other places, the entire housing problem has been taken over and handled by chambers of commerce.

Lockport, New York, was one of the first of the cities in which the entire problem was handled by the Association of Commerce, and several other cities have taken their cue from it. The principal industries of Lockport expanded rapidly in 1916-17 until the housing problem became acute. The heads of the industries, as a result of the increased business, naturally had more than usual to do strictly on the manufacturing side, and the directors of the Board of Commerce therefore agreed to look after the housing.

At first it was believed that the real estate men and builders would do practically all that was necessary on their own resources, but this did not prove to be the case. The directors consequently appointed a committee, and this committee worked out a comprehensive plan, under which these steps were taken:

1. A corporation was organized with an authorized stock of \$100,000.

2. Stock to the amount of \$70,000 was sold to 111 manufacturers, merchants, and professional men.

3. In all, 88 houses were built or purchased ready to be set up.

4. The company owns 114 lots in seven groups located in three different sections of the city, thus distributing the houses so they are accessible to the different factories.

5. Fifteen different styles of houses have been built, so that the usual factory rows have been avoided. The architecture is attractive, and the houses are built on large lots.



Figure 8: Men earning \$6 and \$8 a day are to live in these attractive houses, which form a part of Firestone Park. With homes like these, employees naturally become better workers, say their employers.

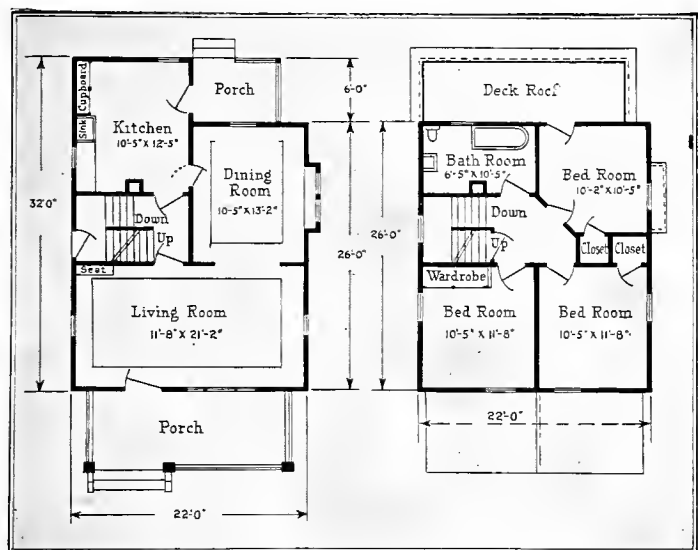


Figure 9: The floor plan most popular with the Firestone Company's employees is reproduced here. When a number of houses such as this can be built at the same time, the building costs are comparatively low.



Figure 10: A tenement house used to mean a dilapidated structure with disease lurking in every corner. What a contrasting picture this Bridgeport tenement presents! It houses a dozen different nationalities.

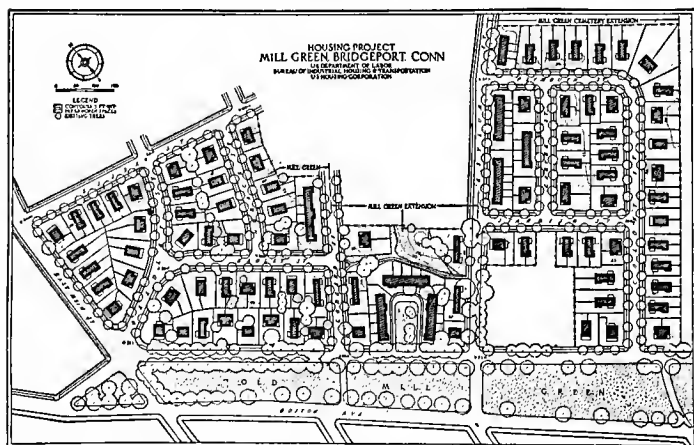


Figure 11: This plan shows the excellent use of available ground space in one Bridgeport housing project. It is interesting to note the amount of space allotted to parks and trees around the workers' homes.

6. Houses are either rented or sold on payments, which, after a modest first payment, may be as small as the rents.

How extensively have the employers undertaken housing operations? In 1916 a list of 700 who had done so was compiled and it was conservatively estimated by Government investigators that there were at least 1,000. Since then, many others have undertaken projects.

A number of manufacturers who were asked what advantages they had gained from housing operations gave the following:

- A better class of workmen
- Greater stability in labor
- Smaller number of "floaters"
- Better living conditions
- Greater loyalty from employees
- More contented workmen
- More efficient workmen
- Better control of labor situation
- Attraction for married men
- Greater regularity of employment
- Profit to employer from rentals
- Facilitation of part-time employment
- Advertising for the company and keeping it before the public favorably.

Against these advantages a few employers have mentioned a disadvantage in the fact that their housing operations were not directly self-supporting.

The industrial conditions which have given the modern impetus to housing are higher wages, shortages of workers, and the special importance of reducing labor turnover and keeping up efficiency.

An idea between the difference of handling the housing problem intelligently and otherwise may be gained

from the experience of the American Rolling Mill Company, for one, and an Illinois community for another. Immediately after a new man is hired at the American Rolling Mill Company, the employment manager asks him if he is a newcomer to Middletown, where the company is located. If the workman is unacquainted with the town, a well-informed clerk helps him to find living accommodations that meet his housing needs.

This clerk's sole duty is to run what is in effect a rental office. He has lists of desirable single rooms at various prices, as well as apartments and houses to meet the needs of family men of any earning capacity.

WHY VALUABLE WORKMEN OFTEN  
TURN DOWN A GOOD JOB

The new man as a rule can be located and settled in a few hours in quarters which are sanitary, convenient to the plant, and reasonable in price. The company thus relieves him of what to most men is a disagreeable and discouraging job—house hunting. If he is a family man he is ready to go to work with an easy mind, knowing that his family is safely cared for.

That is one picture. Contrast with it the other and unfortunately more common one. A skilled mechanic, his wife, and two children, unload three telescopes and a lunch basket on the station platform of an industrial town. Leaving the family and the baggage at the railroad station he applies for work at the employment office of the town's largest manufacturing plant. Men are scarce and he is hired on the spot. But he can't go to work at once, for he still has to make the rounds of the real estate offices to find the five-room furnished flat he needs.

After half a day he is still looking, but he is then willing to take two rooms. At 6 o'clock he reports to his wife that he has found only two places, both smaller



Figure 12: Almost any worker would feel happy and contented in a home such as this. Better results are obtained, say employers with experience in this work, when the houses are individual in appearance.



Figure 13: Concerns which provide comfortable living conditions, as well as working conditions, find that their workers usually think twice before quitting their jobs. Other types of dwellings are shown here.

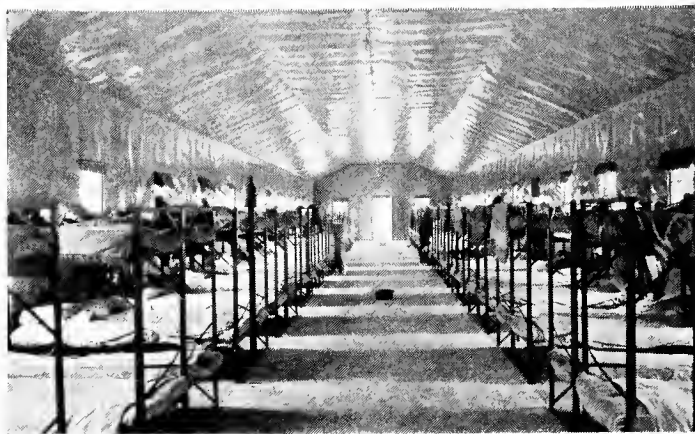


Figure 14: This dormitory for one concern's colored workmen provides better quarters than many of them could find outside. Where floor space is at a premium double-decker beds help to solve the problem.



Figure 15: Lumber camps, as a rule, find it hard to provide their men with little more than makeshift quarters. One concern has solved the problem by housing its men in trains. Here you see the "diner."

than they consider desirable. One, on the outskirts of town, would make him spend nearly two hours a day going to and from work; the other is in a district to which he would not consider taking his family. That night, he and his family journey on to another town, and a valuable and industrious workman and his family are lost to a town that needs them.

This instance is not exaggerated. Something like it happens daily in more than one city.

Cooperative housing plans have been used effectively in Bridgeport, Connecticut, and in Kenosha, Wisconsin, among other cities. In each city the industrial concerns formed a corporation to build and handle the houses. In Kenosha the houses cost from \$1,700 to \$1,900 each, the lot \$300, and the usual improvements \$200. With profit and all expenses added, the houses are sold to a workman for from \$2,500 to \$2,700. He pays at least \$100 down and \$18 a month, which includes interest.

Some of these houses are single, others double. They may be had with either five or six rooms and bath. It is expected that ultimately it will be possible to sell houses of this sort at about \$2,000.

In Bridgeport, attractive houses and apartments have been built, but the intention is to rent them, rather than to sell.

With large-scale housing the greatest economy apparently comes when either frame or concrete construction is used, although at Bridgeport practically nothing but brick has been erected, and the relative permanence is believed to render this construction economical. Concrete houses have been made effective at Gary, Indiana, by pouring them in sections and then assembling. It is said that houses of this type have been put up for \$1,000 each, about \$300 less, it is estimated, than a similar house of wood could be built for.

	<b>PLAN 1</b> Community Companies	<b>PLAN 2</b> Community Companies	<b>PLAN 3</b> Community Companies
<b>Capital-ization</b>	Of Financing Company from general stock sales. 50% immediately; 50% on call	Of Financing Company from stock subscriptions of commercial and industrial interests. 60% immediately; balance at periodic intervals	Capital raised as in Plan 1. Stock in approved Building and Loan Assn. purchased with capital
<b>First Mortgage</b>	Placed by home seeker with outsiders, Financing Company advising and assisting. Mortgage value—80% of cost, including improved lot	Assumed by Financing Company at prevailing interest rate. Not less than 60% total cost, including improved lot.	Home seeker places first mortgage with Building and Loan Assn. First mortgage—not less than 80% of total funds required
<b>Second Mortgage</b>	Assumed by Financing Company. Not over 30% total inclusive cost	Assumed by Financing Company at prevailing rate. Not less than 30% inclusive cost	In case Building and Loan Assn. cannot assume total risk the Financing Company assigns to Building and Loan Assn. stock of building and Loan Assn. to amount of difference
<b>Initial Payment</b>	Home seeker to pay 10% total inclusive cost to Financing Company at time of loan	Not less than 10% of total inclusive cost. To Financing Company at time of loan	To Building and Loan Assn. Not less than 10% of inclusive cost
<b>Liquidation</b>	Not less than 1% of total cost payable monthly to Financing Company to meet interest and principal on first mortgage, then second mortgage.	Not less than 1% of total advancement in monthly payments	Payments of not less than 1% of funds advanced to Building and Loan Assn.
<b>Revolving Fund</b>	Financing Company funds released by second mortgage payments available for re-investment	Sale of trust notes to investors by Financing Company Collateral mortgages	Installment payments applied against stock of Financing Company
<b>Income</b>	Estimated gross income—6% of invested capital Estimated net income—4 or 6% of invested capital	Depends largely on rapidity of re-investments. Estimated at 6% invested capital	Gross Income of Financing Company—Interest rate by Building and Loan Assn. on paid up capital
<b>Insurance Benefit</b>	No	No	No

**Figure 16:** So well developed is the housing movement today that the employer who wants to undertake a home-building project finds many ready-made helps at hand. The six plans for financing such an undertaking, shown here and on the opposite page, may be shuffled up,

<b>PLAN 4</b> <b>Community Companies</b>	<b>PLAN 5</b> <b>Industrial Companies</b>	<b>PLAN 6</b> <b>Industrial Companies</b>
General subscription to capital stock. 10% plus periodic payments	Appropriated by company or companies entering the project	Provided by company or companies interested
Not less than 60% of total funds with approved lending institution	Employee gives demand note, at current rate, to company for first mortgage	Company assists employee place first mortgage to cover 60% of total funds
Home seeker buys lot on his own terms. Financing Company takes land contract to cover difference	Time notes by employee to company. Interest, for second mortgage	Time note to company for difference
10% of total funds. Paid on lot	Not less than 10% of inclusive cost	Not less than 10% inclusive cost
Not less than 1% of cost of house payable monthly to Financing Company to retire loan. Other payments—interest on first mortgage, taxes, fire insurance	Shares in Building and Loan Assn. so that deposits will equal face of note at maturity. Monthly interest payments to company on demand and time notes	Combined "life-accident" insurance policy. Cash surrender value used to pay time note and portion of demand note. Monthly interest payments taxes, fire insurance
Financing Company negotiate loans. Security—land contracts		
Estimated gross—5 or 6%	No	
No	In event of death or incapacity, unless over 60 at death, company accepts cash surrender value of shares as full payment of time note. An option demand note may be transferred as first mortgage to lending institution	In event of death or disability insurance compensation pays time note and part of demand note. First mortgage remains against property

as many of the various elements are interchangeable. The plans are from a pamphlet issued by the Housing Bureau of the Pennsylvania Chamber of Commerce. You will find them, as well as others which experience has proved most satisfactory, discussed in this chapter.

Sameness and lack of individuality do not necessarily result from large-scale manufacture. The typical company house rows—street after street of deadly monotony and ugliness where the tenant needs a guardian to locate his own door—are not necessary, and are certainly far from desirable; even when houses are “factory built” they can be individualized. Floor plans may be reversed, or changed in minor details. Even though about the same floor plan is used for all houses, the exteriors may be different. The same house may, for instance, be finished in shingles, siding, or stucco, and the desired variety secured.

When the work at a plant is seasonal, it may be necessary to accommodate men who should not settle down permanently. There are two rather satisfactory and general plans:

1. The company buys inexpensive houses which are ready to set up, or
2. Old stores, warehouses, or other buildings may be divided into rooms and apartments at small expense.

Several concerns are in the market with ready-built houses, which may be bought at prices ranging from \$300 up. These houses may accommodate a family of four or five nicely, and often are an inexpensive solution of temporary housing problems. Some ready-built houses are also on the market which are planned for permanent construction.

One concern whose work fluctuates considerably uses the “hotel” idea for housing both single and married men. It first rented several vacant stores and installed necessary plumbing and lighting equipment, partitions, and so on.

Provisions are made on the ground floor for a kitchen, dining room and lounging room. On the floors above are individual bedrooms and dormitories. The partitions ordinarily are of wall board, although

"beaded ceiling" is used to some extent. In the bedrooms, single cots or "double-decker" beds are used; in the dormitory, double- or triple-decker beds. All beds are of iron. Ample toilet and shower-bath accommodations are furnished on each floor.

The rates run from about \$1.25 a week for the dormitory to about \$3 a week for a private room. Board is furnished for \$5 a week. The company does not try to make a profit, nor on the other hand does it subsidize the hotel. The fundamental aim is to make the men comfortable, at cost. The hotel houses about 150.

This same company has used similar methods for housing workmen who have families. For this purpose it divided a building into "apartments" to meet the requirements of various-sized families. These apartments generally are of from two to four rooms, one room being a sitting room. At first, kitchens were furnished for each apartment, but this installation ran the cost up so high that it was found better either to have a large dining hall for all, or a central kitchen from which food could be distributed to the different apartments.

Of course, the construction of partitions must be better where apartments are provided for family use and it is questionable whether the expense does not go up to a point where separate dwellings would be fully warranted.

It is well, before spending a lot of money for workers' houses, first of all to determine accurately what the conditions demand. In England it has hitherto been accepted as requisite that houses must have at least three bedrooms, a dining room, a kitchen, and a bathroom. This plan has come to be generally accepted in America, although often three bedrooms are not needed. All houses, should, of course, be modern as to water, gas, electricity, and sewer.

One experienced man says that no housing plan can be considered successful if it does not meet the requirements of the investor. When houses are rented, he declares, the rents should be equal to those of the neighborhood for houses of the same type and location.

An effective plan has been worked out by the Good-year Tire and Rubber Company. This plan undoubtedly could be adapted by smaller concerns which wish to provide only a few houses.

A subsidiary company was first formed to develop the subdivision and build the houses. The land was bought and improved by the company. Arrangements then were made with a life insurance company to take a mortgage for one-half the value of the property, the rest of the expense being borne by the housing company. The worker purchaser signs a first mortgage, which is held by the insurance company, and a second mortgage, which the housing company holds. No initial payment is required, and the semi-monthly payment is applied upon the two mortgages in nearly equal amounts.

To prevent speculation by purchasers, a premium of 25% of the cost is added to the price of the house. After a certain number of payments have been made, the payments are readjusted so that this premium is rebated and the buyer pays only the cost.

The buyer of a house and lot which costs \$1,984 thus would contract to pay \$2,480. His semi-monthly payments would be:

First 5 years.....	\$11.27
Next 7 years.....	7.31
Next 3 years.....	3.86

After 5 years the 25% bonus is deducted, and after the next 7 years full payment on the first mortgage has been made. So, 15 years after purchase, the buyer owns his property clear.

## CHAPTER VIII

### FOUR SOCIAL-INTEREST PLANS

*This chapter presents methods used in four concerns to make workers feel at ease and happy socially. The first plan is designed to help a new employee get acquainted with his fellow workers. The purpose of the second is to enable bosses and men in the same and neighboring concerns to get together. The third plan is designed to get the workers' families interested in the plant and the jobs of the men. The fourth plan is an "open forum" used in the W. H. McElwain Company.*

**W**HAT I consider a most important factor in getting a new employee started on the job right, is to see that he is given bright and correct first impressions. These impressions should be followed beyond the interviewer's desk in the employment office; they should be carried right to the job itself.

Take yourself, for example. The first day you put in on your job was a day of trial and of more or less guesswork; not as to your ability, maybe, but in wondering who that fellow and the other fellow was, and just how you might "stack up" with him after the first day.

The feeling not only related to how you might impress those superior to you, but also how those under your direct supervision might feel toward you; how they might "size you up," because these latter are the ones with whom you must work in the future and who should work with you if best results are to be obtained.

Now, maybe you were introduced by someone, to those higher in authority, or maybe you were not. Having been through the mill both ways, and appreciating the decided advantages of the introduction method, I took my cue from it and proceeded to try out a similar plan throughout the employment office of our company in getting all new employees started on their jobs.

The old system was to send one or more men, conducted by a boy messenger, to the proper department in the plant, let the messenger get the foreman's receipt for the new man or men, and return with the receipt to the employment office. There were several things wrong with the plan.

First, the busy foreman rarely took time to do much more than initial the receipt card. He didn't have or take time to meet the new man in any other than a brief, boorish manner. For him the affair was merely one of the bothersome incidents of the day that interrupted his task of production.

Second, the boy messenger wasn't always (seldom was, in fact) discreet in what he might have to say to the new employee while on the way to the plant, regarding this or that department, job, or foreman. New men have a natural curiosity about such things, and are very frequently rather persistent in asking their guide questions on these various points. A great deal depends upon those questions being answered fairly, intelligently, and courteously; otherwise, the new man may be ready to quit his new job before he starts.

Third, the boy messenger commanded little or no respect, and neither the foreman nor the new man attached much importance to him or his job. Then there was the loitering and "kidding" and general all-round mischievousness of the average boy of from 16 to 18 years.

So a new scheme was tried. In place of the three boys we had as messengers, a man of 38 years of age was employed for this work. The boys were transferred to purely messenger jobs in other departments. In the selection of this man, great care was exercised in obtaining one with the proper personality. He had to be bright, cheerful, know something about the various departments, and the kind of work done in each. He had to be able to think quickly and talk correctly, be absolutely loyal in thought and deed toward the company, and be big and broad enough to set aside personal feelings and give everyone a good word and a square deal. Then, too, his personality had to be attractive and he had to have sufficient personal dignity to command respect.

THE MAN WHO FILLED THE BILL WAS PICKED  
FROM THE FACTORY RANKS

It was a fairly good-sized order to find just such a man, and many were interviewed personally before the right one was found. After about three weeks of unsuccessful effort there stepped into my office one afternoon one of our own men who had worked in the plant for nearly three years. During this time he had been employed in four different departments. He wanted a transfer and wanted to get started in employment work and learn it. His record was faultless and his foremen all spoke highly of him. He had great ability in making friends and making one feel at ease. He also inspired confidence and one instinctively felt that what he said was "gospel." This new proposition was thoroughly explained to him in all its various ramifications, and its importance and meaning were put to him squarely. The salary question was arranged satisfactorily, as were his future prospects, and the following Monday morning he went on the new job.

The first day we put 83 new men on jobs and this man took everyone of them to their foremen and introduced them to the foremen. He had accomplished more deliveries alone on his first day than the three boys had ever been able to do, and at the next foremen's meeting, held three days later, every foreman unqualifiedly endorsed the plan.

Some of them stated frankly that it was the first time in their lives they had ever had a chance to meet a new man right. One said he didn't know it could be done, and thought the idea foolish at first, but now he wouldn't go back to the old method for anything. Others related how they were carrying the idea even further and were gradually becoming better acquainted with all their men.

The plan has been in operation about four months now and is working admirably. Not a single complaint has come in, as compared with almost one per boy per day under the old plan. A great deal of time is saved through lack of loitering and mischief, and the new man is given a good "send-off" and the opportunity of meeting his future boss under as near social conditions as occasion permits. The two at least have a chance of first meeting with a smile, handshake, and a pleasant word or two. This gives them both a good start, and our policy of courtesy in the employment office is followed straight to the actual placing of the new man on the job, with the added advantage of the new man having his numerous queries answered properly and intelligently while on the way to the plant from the employment office.

Some will ask, "Does this pay, and how?" I will give but one out of quite a few examples that have come to my personal attention since the plan was adopted. We sent a man in to our assembly line to break in. After several days he came to the employment office and stated he did not like his work as he

didn't believe he was fitted for it, but he certainly did not care to leave the employment of a company that treated its men so well. He was told he had been on the job hardly long enough to know whether he liked it or not, or even to know how we treat our men. He came right back with this: "Say, I got a job down at So-and-So's plant at 5 cents more per hour, but it's worth something to me to be with fellows that say 'good morning' and I sized you people up as the right kind when you first put me to work." His case was investigated and was found satisfactory, so he was transferred and is making good.

Quite a bit of complimentary criticism has come to us regarding the plan, and we believe that it is not only helping us as regards that good reputation among workmen that is so valuable to a firm, but we believe it is also helping to cut down that ever-present turnover.

In a plant like ours, where about 4,000 men and women are employed, these smiles are undoubtedly accomplishing a great deal for us. Last but not least, it costs us less for our one man than it did for three messenger boys, and the man is drawing a good salary, too.

Many manufacturers have their associations or clubs to which they can go to talk over their business affairs or meet socially. Similarly, the worker has his unions, his lodges or other organizations which he uses for the same purpose. The general effect of these two separate organizations, each excluding the other, is, that instead of getting together, they naturally pull apart.

Some attribute much of the social unrest to this separation. Perhaps it would be impossible for them to overcome this by mingling in each others' clubs as they generally exist, because of a lack of a mutual viewpoint.

However, there is a link between the higher executives and the workers which is seldom utilized to any-

where near its full sphere of usefulness. This link is the body of foremen and department heads. These, if organized and trained, would make a formidable body to meet the attacks of propaganda which are fed to the workers constantly. I am quite convinced—and this belief is held by the other industrial executives who are connected with our association—that in order to reach the human element in all forms of business, immediate cognizance must be taken of these men who stand in between.

THIS PLAN OPENED THE DOOR OF CONTACT  
WITH THESE "KEY" MEN

Our association has organized these men into a club with the "bosses." Once a week, on Tuesday nights, about 1,000 bosses and men meet in their clubrooms to hear some prominent speaker discuss the problems which they face every day at their work. At one meeting, for example, a prominent industrial engineer explains the principles and value of planning, scheduling, and dispatching, while at another, some economical phase of the capital and labor problem is the topic for the evening.

But listening to the talk alone is not the whole value obtained from these meetings, for, after the speaker has finished, the meeting is thrown open to discussion and questions. Often some member gives his experience and tells how he handles the problem in his own plant.

Some time ago, at one of the regular meetings, eight executives from one of Cleveland's large plants discussed their industrial and managerial problems and how they meet them. The subjects discussed were as follows: "Our Mechanical Problems," by the mechanical supervisor; "Our Experience with Labor-Saving Devices," by the chief engineer; "Our Experience with Cost Systems," by the efficiency engineer;

"Increasing Production," by the production manager; "Our Labor Problems" by the employment manager; "The Superintendent and the Man," by a department superintendent; "Helping Build Plant Spirit" by the welfare manager; and "Our Dominating Managerial Idea," by the director of personnel.

An opportunity for the junior executives in any plant to rub elbows with the men from another and hear them tell how they solve their day-by-day problems cannot be missed without loss. Especially is this so if the plant has a good reputation for its excellent management.

But hearing the speaker, and listening to or even entering into the discussion, is perhaps of not greater value than the opportunity to meet and discuss man-to-man, with the man seated beside him, the special problems confronting him at that time, even though they may not be on the program for that evening. This association makes new acquaintances and increases friends both in a business and social way, a point which cannot help but build a more valuable executive.

How this worked out in one case is given from the experience of Melvin Pattison, vice-president and general manager, The Brown Hoisting Machinery Company: "Several of our employees are members of the association and report that meeting foremen and superintendents of other concerns, and exchanging views and rubbing elbows with them, is of great help and naturally benefits both.

"At one of the meetings our general superintendent and myself were together when he met a superintendent of another plant, and while waiting for dinner they exchanged views on the manner of paying off.

"One of the main benefits derived, I feel, is that I am continuously reminded of the importance of keeping in touch with employees for our mutual benefit."

But what is the organization which does all this, you may ask. About 5,000 bosses and men from 700 of Cleveland's industrial and commercial institutions are banded together in the Industrial Association of Cleveland. The membership is divided into two classes—employers and employees. Those who own or control a business as the active heads are classed as employer members. Of these, the association has 700 enrolled.

Salaried men—assistant and departmental superintendents, foremen and subforemen, office, cost, production, clerical, or other men interested—may join as employee members. And workers, when they show enough interest and desire to better themselves, are welcome, also. The company pays dues according to the number of men on its payroll. These dues are low, running from \$10 for a plant having not over 25 employees to \$100 for plants with 500 or over.

Employee memberships are held and usually paid for by the individual. Their dues, when the organization was first formed, were \$2 a year. Recently, however, by a large vote they agreed to increase this to \$5 a year. Over 150 men from one company are employee members. In all, 4,300 employee members are now enrolled.

Although the meetings are not held as dinner meetings, many of the employers bring their men directly from the shop and all eat together in the hotel dining room. This helps the employer get in closer touch with his men, as is well shown in the following letter:

"I have been a member ever since the organization has been in existence," says W. C. Sly, president, The W. W. Sly Manufacturing Company. "Also every foreman, engineer, draftsman and office employee of our company is an enthusiastic member of the Industrial Association. We attend the lectures and other educational functions en masse, and not

only derive the benefits of the knowledge imparted, but profit by the closer point of contact of employer and employee.

"Our foremen, office force, and engineering department meet in a social way, which is a great help in smoothing the paths of better personal understanding in their daily duties. We also learn from others their methods which keep us out of the rut, and make us all efficient.

"The benefits I personally have derived are most gratifying. I have a better knowledge of the individual employee, and they know me better. I have been able to discover talent in some of my employees by this closer association, which otherwise might never have been disclosed. I have been able to make a close individual study of them, which alone has been a great assistance in selecting the proper man for the right place as our business expands.

WHAT THE ASSOCIATION HAS MEANT TO THIS  
COMPANY PRESIDENT AND HIS JOB

"In conclusion I wish to say," writes Mr. Sly, "that while the Industrial Association is a great help and educator to my men, it has been a greater help to me, because I feel that I am better enabled to fill my position of president of my company, because of the knowledge I have gained of my fellow men—my employees."

This association has its social features as well. This part of the work is under the control of a special entertainment or "foot-lights" committee of 125 members. The wives of the members are also organized into a ladies' auxiliary. Together or separately they put on frequent stunts nights when they have entertainments of various sorts.

Large committees make one feature of this association. It is one way of spreading the work and keeping a large proportion of the members active and interested.

Their membership on these committees makes them feel that they are doing something definite toward boosting the association.

Along this line the association is controlled by a governing board composed of 50 employee and employer members evenly divided. A secretary, permanently employed, is empowered to act as business manager and transact any ordinary routine business.

The educational, house, and library committee keeps another 100 members active and busy on association work. Other committees employ other members. And, contrary to what might be expected, most of these members attend and actively take part in the committee meetings. They are not satisfied to stay away and leave everything for a selected few to do.

Since the club has been organized, only 10 employers and less than 200 employees have withdrawn or lapsed membership. When the wide variation in members and their personal attributes and qualifications are considered, this is a comparatively small figure. This "mortality rate" is particularly low when it is compared with similar figures in the growth of other organizations.

Some of this is probably due to the practise of having one representative from each plant take a special interest in the members from that shop. This man collects the dues of members in his plant and gets first-hand information on the justice of any dissatisfaction or complaints any man may have with the organization. This man holds a place somewhat similar to that held by the shop steward in a labor organization.

This association seems to have hit the real solution of our industrial problem, inasmuch as the idea is a human one and is put over with real punch.

The workers in this country have too long been under the influence of economic fallacies and we, as

employers, have been negligent in leaving them in the hands of agitators, until today they are worked into a condition which makes them believe in a false difference between the employer and employee, rather than the true doctrine of their mutuality of interests.

This association teaches its members, both employers and employees, the human side of the problem in a way that is understandable and is carried back to those who cannot attend the meetings, in a just and proper manner.

The enthusiasm of the workmen in this association proves beyond a question that they are anxious to get the real truths. It would be useless to attempt to explain in words the good results obtained from this organization, but they are spreading a gospel of truth that has been too long withheld.

The broad field of industrial relations is benefited through the teachings of the association, according to Sheldon Cary, president, The Browning Company.

"There is always one correct solution for every problem," says Mr. Cary, "and we have reason to feel that the Industrial Association is the correct solution for our industrial one. We speak from actual results obtained and results tell an interesting story.

"The Industrial Association is teaching its men sound, economic business-sense in a plain, practical way, and in the center of it all is placed the human element from which radiates the humanizing thought that every man deserves the consideration of every other man for the simple reason that he is a man.

"Our men have been greatly benefited through this organization and the marked change in their manner of treating and handling the men under them proves beyond doubt that we have too long considered only the material things, and that the solution lies in that personal touch that can only be developed through the consideration of the human side.

"Our men have too long been left without any knowledge of what business really is, and, for this reason, we are confronted with the greatest power on earth; that is, the power of ignorance. This is true because knowledge is in the minds of so few in comparison to the vast millions who simply do not know. The Industrial Association takes our foremen and 'key men' and teaches them sound, economic facts in a homely, understandable way which they in turn spread among the men under them.

"It has also had a wholesome effect upon me personally, and has opened up many new channels of thought. Without hesitation, I can truthfully say that, from the results I have obtained, this association has the most comprehensive plan for bringing about a genuine and lasting spirit of collaboration between the employer and employee."

Another member feels that the foremen have had a different conception of their jobs and a new attitude toward the workers since they have begun to attend the meetings of the association. The foremen have begun to study their problems, to talk them over and discuss them with their co-workers.

#### THE BROADER RESULTS OF "RUBBING ELBOWS" WITH THE MEN

Through association, men get a broader viewpoint—a benefit which cannot help but be reflected in their work. A talk on planning, routing, and dispatching, by a prominent industrial engineer, stirred up considerable discussion in one plant, and, the management believes, resulted in greatly improved shop conditions.

One of the ways to meet radical propaganda is to counter-attack with truths and sound American doctrines. If the foreman is a high-type man, respected by his workers and able to explain in a clear, forceful way the truths of economic principles and show up the

thinly veiled fallacies of most propaganda, he will soon be looked to for advice and leadership.

It is through such association as is given here that the foreman is made a better foreman to men and management. The benefits from an association such as this are well summed up by R. J. Goldie, factory manager, The Columbia Axle Company, as follows:

"I believe it has got, and will to an even greater extent, get superintendents and department heads to thinking along the right lines in regard to the problems of industry. They in turn will be in a position to carry the message down to the workmen in the shop.

"There has been so much superficial discussion and writing about industrial problems in the daily papers, which, for the most part, apparently are printed for the purpose of selling papers and making attractive headlines, but in very few cases go deeply into the real causes and effects of the so-called industrial unrest. I believe that the association can do both the employer and employee a great deal of good, if it can get them to think clearly of the effect of drastic changes in the policies and conduct of manufacturing industries and their employees.

"We have recommended to all of our department heads that they join this association. A great many of them have. And I believe they have been given new things to think of; things to which they have never given any attention in their daily work in the shop. Whenever you can get men in responsible positions to think along lines apart from their actual daily duties, the result can be nothing less than helpful to the employer, as it means broader department heads, men capable of assuming larger duties in the organization, who, every employer knows, are too few."

"I'm telling my wife about the work we do here in the shop," said one of our men the night of our annual shop visitation. He had just interrupted her

inspection of the plant to introduce her to me, whom he called "one of our men."

Our plan to bring the home into the shop is one of our best factors for industrial betterment. It actually ties up the home by the direct contact method.

All industrial workers reflect the influence of their shop conditions, environment, job and management. This reflection they carry home with them each night as they discuss with their family the doings of the day.

But what does the average wife or mother know when the worker comes home and tells her that the "jig didn't work good today?" To her a jig is more likely to be a new kind of a "jazz" or a nickname for the foreman. Unless she has worked in a factory in her younger days, the jig is a meaningless combination of three letters which could just as easily mean a new kind of foot powder.

If the employee tells her what a jig really is, then, of course, she knows. She knows until the next night when she is told about something on the jig of which she has never heard before, the reason being that a new type of jig was used that day. So the home folks are unable to understand, say nothing of being able to sympathize with, the trials of the men in the mill.

To bring about this desired understanding, the idea of a shop visit by the home was created. Our visiting nurse carried the shop policies into the home, but we felt we wanted to get still closer to the home. So we arranged the annual dinner and shop visitation.

A committee of the workers—the management had nothing to do with it—arranged the whole affair. The sale of tickets was restricted to the plant. Each employee could buy one ticket for himself and a second ticket to bring someone from home. If single they were urged to bring their dearest friend. Only two tickets could be sold to an employee. The price was set so everyone could afford to come.

Immediately following the speechmaking, it was announced that guides were available to show people through the entire plant. All of the buildings were gay with light and everything was open for inspection.

Rarely did a guide finish up with even half of the number of his original group. As a man came to his machine or his bench he would drop out of the group to be able to spend some length of time demonstrating to his wife just what his daily work consisted of. This demonstration usually consisted of operating the machine, showing how the parts were made, pointing out different types of jigs on the other machines and so forth. Particular mention would be given to the names of the fellow workers in the department and on what machines they worked.

SOMETIMES IT WAS A SIGHT-SEEING TOUR  
FOR THE WORKER HIMSELF

After the worker had exhausted his supply of information regarding his own work, he would join another group and continue the plant visitation. Usually it was his first opportunity to get into departments other than his own and his education upon plant processes and procedure would be greatly enlarged. By the visitation the worker would better tie up the relationship of his individual job to the whole scheme of the manufacturing system.

The home folks were also introduced to the fellow-workers. In the future these fellow workers would mean real flesh-and-blood people instead of just names in the great field of the unknown.

Our general plant conditions are the best. The homes that are poorly kept will usually revise their standards of housekeeping after a plant visitation. The women folks learn that their men work where it is really clean, where the food they eat is wholesome and well cooked, that the light and ventilation is good,

and of many other little things that help to make men contented. If the men work under such conditions, the women appreciate that their homes must at least keep to as high a standard in these things as the place of employment.

After the visitation the home folks can more readily understand the language of the shop. If the husband comes home at night with a tale about not having a fit place to work, right away she knows that this complaint is only an excuse and that the real trouble is somewhere else.

For the two years that we have tried the plant visitation, it has been a decided point in favor of reducing our employees' troubles and labor turnover. We feel that it occupies a field that is distinctly unique in industrial relations.

Its very uniqueness makes it appealing. It gives the worker a chance to impress his work, skill, and brain upon those nearest and dearest to him. It is an important factor for instilling pride in workmanship and plant loyalty.

The very fact that over 100 workers, including executives and office and factory hands, unite in various committees to make the function a success, is one of its biggest assurances of being very much worth while. A by-product worth mentioning is that it assures a general factory clean-up once each year whether it needs it or not!

At the first factory forum at the shoe-manufacturing plant of the W. H. McElwain Company, it had been advertised that tickets of admission would be limited to 300, but that any employee might have a ticket if he would be sure to use it. As a result of this plan, there was present at the meeting a cross-section of the entire organization—workers of every grade, as well as executives—and the hall was well filled.

This meeting marked probably the first application to strictly industrial conditions of an idea called the open forum movement, which is known in many parts of the country in other than industrial lines.

The success of the open forum movement made its founder, George Coleman, consider how it might be employed to help bring capital and labor to a mutual understanding. This was the inception of the industrial forum idea.

"To my mind," says George Coleman, "the crying need of the country is to get folks together. There can be no hope of a real democracy among people who do not know each other. The real solution to the grave problems that threaten our industrial, political, social, and economic life will be found only in an environment of mutual understanding and good will between the classes, and creeds that make up our common life.

"When a strike or labor trouble of any sort takes place, it is usually settled after a lot of money has been lost and bad feelings aroused, by the two parties at odds getting together and talking things over. Why not have the workers and executives in a factory or trade get together before trouble takes place? If they meet and talk over matters of mutual interest in the open, misunderstandings will be adjusted in nearly all cases.

"The modern factory system, although inevitable, has been the cause of practically all our labor troubles. Two sets of men, or individuals, working on the same job, are bound to have trouble when separated by the glass door of the office, with no human relationship between them. This was not the case in the old-time journeyman days, when master and man worked together side by side. Now it is really nothing but autocrat and subject. Business men realize that human relationship is the finest and only real method of bringing together and harmonizing men in such a

system as ours. That executives are realizing this is shown by the fact that many factories, besides having sales and production managers, have managers of human relations, sometimes terming them employment managers. These men are very carefully chosen, and are as necessary to a plant as the machinery.

"The right way to run a factory, or any large industrial concern, is not to wait for trouble to develop and break out in the form of a strike or lockout, but to have all live together in harmony and avoid friction. This can best be accomplished by having them meet and talk things over and get mutually acquainted with each other. The industrial forum will accomplish this purpose.

"We believe that the time to thresh out misunderstandings is before matters reach a critical stage. When employers and employees get together and talk things over, with full discussion of all the most important questions and points in dispute, the probabilities are that misunderstandings will evaporate and maladjustments be corrected."

THE VICE-PRESIDENT ENUMERATES SOME OF  
THE BENEFITS OF THE FIRST SESSION

So, with this background, the factory forum was born at the McElwain plant. The first meeting started with a half-hour of community singing, to work up that "get-together" feeling so valuable as a preparation for a successful forum evening. George Coleman was the speaker, and his topic was, "Why the workers in the W. H. McElwain plant should start the first industrial forum in America."

Four monthly meetings were held before the forum adjourned for the summer. The speakers at the other three meetings and their subjects were: Richard A. Feiss, general manager, Joseph and Feiss Company, on "Putting in Efficiency and Leaving out Paternal

ism"; Henry P. Kendall, of the Norwood Press, on "Hiring and Firing"; James Macfarlane, ex-president of the employees' association of the Morse Drydock and Repair Company, on "Personal Experiences on a Shop Committee."

Winfield L. Shaw, a vice-president of the W. H. McElwain Company, has had charge of these forum meetings for the company. Asked as to the results attained, he said:

"The industrial forum movement is, we feel, a move in the right direction. Office employees and minor executives like it. We think a great many of our factory employees will grow to like it.

"There are a great many foreign-born workers in shoe factories. By these and by the unions this new movement is not taken seriously, and some even regard it with some suspicion as a plan to put something over on them.

"Some of our speakers have talked over the heads of some in the audience. For instance, we found that many in the hall did not know what a certain word meant, and had to look it up in the dictionary when they went home. As this word was used constantly by one speaker, it was clear that it was regarded as 'high-brow stuff' by some in the audience. This must be avoided in such mixed assemblies as ours are.

"We have in Manchester about 3,800 employees, in three separate factories in different sections of the city. Attendance at forums has been limited to 300. Attendance has not fallen off. The hall at one or two meetings has not been quite full, because we have issued tickets only to seating capacity and some holding tickets have been unable to attend. By issuing tickets to slightly more than seating capacity, it is felt that the hall will continue to be filled.

"Questions have been asked by the audience, but so far they have been noticeably guarded, in many

cases due to diffidence in speaking, and in others to fear of 'getting in Dutch.'

"There is no formal plan of organization in existence yet, but it has been suggested that the McElwain Club, the organization of the employees, be asked to take over the running of the forum meetings.

"Up to the present time the speakers have been chosen by Mr. Coleman in consultation with the management. We pay the speakers both for speaking and expenses.

"So far the forum necessarily has had no effect on industrial problems in our plant. It is far too young to expect anything of that sort for some time. In fact, it is understood that the forum has no relation to actual factory problems in detail, but is for comparison of ideas, information and inspiration, and for the exchange of viewpoints. If it fulfils these conditions, the factory forum is well worth while.

"As regards the subjects to be discussed, speakers cannot be too specific, and they must talk in simple language, far more simply and specifically than in the ordinary community forum. I regard the function of the factory forum as purely educational and social, and each factory must be the judge of the subjects to be discussed and who shall be the speakers.

"The following subjects have been tentatively arranged for discussion at the McElwain forum meetings during the present winter: "Safety First," "Turn-over of Labor—Its Causes and Consequences," "Monotony and Fatigue," "Women in Industry," "Wages and Profits in the Shoe Factory," "Industrial Changes in Russia, England, and America."

At the first fall meeting held in Manchester, Henry Abraham, for 26 years secretary of the Central Labor Union, of Boston, was the speaker. His topic was "Good Will or Violence," and he spoke at the very hour that Boston was experiencing a strike of its

police force. The meeting continued in true forum fashion, bringing out eager, spontaneous participation by both men and women, representing both management and workers. Mr. Abraham was hard put to it to satisfy some of his questioners.

Feeling on both sides, however, showed earnest good will, and courtesy prevailed. Among the questions shot at the speaker was this: "Would a nurse in a factory hospital be justified in leaving a patient, who needed her services, because she had finished eight hours of labor?"

Another pertinent question was, "Did the Boston police, in striking and subjecting the citizens to the danger of loss of life, limb, and property, commit an act of violence?"

Still another one was this: "Is a labor union justified in giving recognition to floating, incompetent workers?"

The answers to these and many other questions were very full and afforded considerable discussion, which, of course, is the object of the forum.



## **PART II**

### **PAYING WORKERS**



## CHAPTER IX

### THE ECONOMIC BASIS OF WAGES

*How the bargain between employer and employees has to be struck—and why the real interests of the two groups must both center in increased production.*

**T**URN out more goods!" is the incessant plea among employers. And the plea is greeted by the answering demand of the workers, "Pay us higher wages!" Too seldom does either group seem to appreciate that these apparently conflicting demands may be reconciled; are in fact at bottom the same demand; and that, while recognizing frankly the existence of clashing interests in industry, the understanding and application of the principles involved can give both groups what they want.

The earlier chapters of these volumes have dealt with various aspects of the labor problem, without approaching what is really the nubbin of the whole affair—namely, the wage bargain. That, with the methods of numerous employers, is the subject of the chapters in this section.

It is a counsel of perfection to ask that wage disputes be abolished from industry. But it is not too much to hope that a majority of employers and employees may come to an understanding of these economic principles; and starting with the intelligent analysis of their problems, that they may work out effective ways of handling them without the losses incident to the violence of strikes and lockouts.

What are these principles? What is needed to insure both increased production per individual, and higher wages?

Naturally, the answer cannot be given in a word. Still, the problem is not so terribly complex as it might seem. Only when men's passions are aroused, or when their needs and desires are intimately affected, do they tend to cloud the issue and make a nightmare of an affair comparatively simple in principle.

First of all, what are wages? In the broad meaning of the word, *wages are the return on effort*. They are measured by the possession of, or the power to possess those things which are necessary or desirable in order to preserve human life and promote happiness.

In this broad meaning, the salary of the president of the United States is but a part of his wage. There may be many other returns on his effort, such as a feeling of pride in the dignity of the position, and the opportunity for distinguished service. These may very much outweigh the money return in his eyes. Just as truly, the \$40 or \$50 in the weekly pay envelop of a Pittsburgh mechanic may be but a part of his wage. The opportunity for practising his trade pleasantly, the desirable character of his companions in the shop, and other considerations, may help materially to make up the remainder of the return on his effort. A manager does himself and his men an injustice if he allows himself to lose sight of the fact that other things than money are involved in any bargain between employer and employee.

In the narrower meaning, wages are the return on effort to a worker, measured in terms of money. That is the sense in which the word is used here, ruling out of the present consideration the other factors that make up the employer-employee relation.

It is self-evident that the wage-earning activities of the modern industrial worker are essentially differ-

ent from those, say, of the savage islander of Papua. The latter virtually confines himself industrially to hunting and fishing, and perhaps to cultivating a meager crop of sweet potatoes. He is essentially an individual worker, doing what he needs to do for himself and those dependent on him, but not accumulating an appreciable surplus for use in a remote period or for sale to others. Further in his work he uses only his hands, or a few simply constructed weapons, tools and rude boats, to aid him in his activities.

The modern industrial worker, on the other hand, associates himself with other individuals, often in very large groups, for purposes of joint production. He is aided in this by two principal means:

First, an accumulation of surplus goods over and above individual needs is carried over from the past. Throughout industry, in its furnaces, lathes, and looms, in the long aisles of retail and wholesale stores and the counters piled high with merchandise, in the docks and shipyards, in the rolling stock, rails and terminal facilities of railroads, in all the visible plant and equipment of industry, there is operating this vast, responsive, and essential force, generated by the accumulated surplus production of the past. Because in our scheme of society we do not produce, typically, what we intend to use ourselves, but what we can sell to others, we need a common denominator of value in estimating this force, and we call it money. This surplus fund, which is capital (and the value equivalent of which is called money) greatly facilitates present production. Of course, encouragement of further saving for future needs is essential in our industrial organization.

Second, machines and ingenious devices enable each worker to greatly increase the amount of this production. It needs no demonstration that 100 organized

workers, aided by the right kind of machinery and equipment, can produce vastly more goods than the same number of persons working individually and without machinery.

This entire industrial method brings with it many problems. Business at present is engaged in trying to cope with some of the most serious of them. Because there are some antagonisms of interest, the struggle is often embittered.

One perplexing problem is the difficulty of determining the precise share of each worker in the final product. A single pair of hands does not perform all the operations required to make an automobile; but one thousand do. And the degree of skill in the thousand individuals varies from that of the superintendent who is mainly concerned with organizing and directing the workers, or the chief engineer who designs the product, to that of the broom-boy who sweeps the floor.

In each finished car, what part can the foreman of the painting shop claim as his? And what share belongs to the ignorant "hunkie" whose sole job, day in and day out, is to put in "bolt number 60"?

#### HOW ARE THE JUST REWARDS OF PRODUCTION TO BE DETERMINED?

It may be taken as a general axiom that a man is entitled to what he can produce by the labor of his brain or hand. But the increasing specialization of tasks, the organization of large production units, the minute division of labor, make it a Solomon's task to determine just what a man does produce.

Add to these considerations the complicating fact that the product itself is not divided among the workers. On the contrary, it is sold by a distributing organization over which the majority of the workers have at best only an indirect control.

A portion of the proceeds goes to the workers—not all, because there are other bills to settle.

The fact that there are other bills is not always recognized. Loose thinking economically is responsible for much loose talk and some wild proposals. A radical speaker was addressing a group of laborers in a middle-western city. He referred to a billboard erected by the local chamber of commerce in a prominent place near the railroad station. It read: "This city's yearly manufactures are worth \$400,000,000. Its factories pay \$90,000,000 wages." The speaker pounded his fists on the table and declared ecstatically: "We want the other \$310,000,000!"

But there are the other bills to settle. Some of the money is needed, for example, to keep the machinery and plant up to a proper standard of efficiency. This requirement involves the purchase of new machinery, the setting aside of adequate reserves for depreciation, insurance, and the like, and provisions for taking care of current expenses. In the properly managed business this involves also the provision of reserves for unexpected contingencies—the "savings fund" of the industry.

A second payment that has to be made is that against interest on investment. This payment is the wages of past saving, the incentive that encourages individuals to put aside something out of their present fund into capital—a fund, as already pointed out, without which modern industry would be impossible. The wages earned on this savings fund, and the wages earned as the result of producing, are the types of return to the individual warranted by economic logic. ("Producing" is here taken in the broad sense. The housewife washing dishes and tending the children is a producer, as well as her husband in the factory workroom. The corporation president in his private office who concerns himself with the financial, selling,

or administrative problems of his business is a producer as truly as the mechanic, because if his functions are not performed adequately, there can be no job for the master mechanic. Poets, musicians, and artists are producers.)

The individual, whatever his position may be, who does not work hard enough or with a sufficient amount of common sense to earn a living for himself and those dependent on him, is essentially predatory or incapacitated.

In modern industry it is sometimes possible for the predatory worker to conceal himself in the crowd, yet give the outward appearance of being a producer. He may even be shielded and encouraged by his fellows, either through their limited understanding of economic laws, or perhaps because they think they have been treated unfairly in their employment relations. When this practise of slacking gets under way on a large scale, it means simply that some workers have to produce more than their share, in order to support the slacking workers who produce less than their share. Give those immediately associated with the slacker a sufficient incentive to spot him, and they will get rid of him themselves, or see that he does his work properly. This is borne out by the experience of many concerns where the return to the worker has been made to depend directly on production, and where workers have been convinced that no matter how much they produce they will still receive their proportionate share.

In group production, for instance, where the money wage of the group depends on the production of the group, many instances are on record where the workers themselves have forced the elimination of fellow-workers who could not keep up to the average pace and consequently lowered the group wage. In one factory, girls are employed on progressive assembly

and are paid a group bonus based on output. Parts pass on a moving belt in front of the workers. The speed of the belt is so regulated that when each girl works at a normal rate, everyone is busy.

But if one girl is ill or slow, the fact is immediately evident because the work piles up in front of her. This slows up the rest, and operates to reduce the bonus of all.

It has been the invariable experience in this plant that the other girls turn to and help the slow worker or train her in the best method of doing her task; but, if she continues backward, the others quickly find means to have her replaced with a swifter worker.

#### WHERE THE REMAINING THIRD OF THE BUSINESS INCOME GOES

The third portion of the money received from selling the product in modern industry—after sums have been distributed to keep the machinery and plant efficient, and to pay the interest on the investment—is the wage and salary fund.

The manner of distributing the receipts of a business among these three general funds is the source of all industrial wage disputes. (Note the qualifying "wage." It must be recognized that there are many other places where conflicts arise, in the social and personal relationships involved in industrial life.)

Usually but little question arises as to the manner in which funds are distributed for preserving the efficiency of machinery and plant.

But there are often bitter differences of opinion as to the proper amounts that should be set aside, respectively, for interest on investment, and for the wage and salary fund.

The manner of allotting the wage and salary fund, after its amount has been determined, may also prove a fertile place for starting differences of opinion.

There is a precedent in usury laws for limiting the wages on investment to a fixed percentage. In many types of business, however, it is virtually impossible to attempt any such limitation, except on the broadest and most empirical basis. For instance, there is the element of risk. Some kinds of business are clearly more risky than others. Men will not ordinarily invest their funds in a risky business—one, that is, where the chances of loss are high—unless the chances of reward in case of success are similarly great. And then again, it is not always clear in specific cases that returns which are paid in the form of interest to investors may not be a return on unusually capable management, rather than a legitimate return on the money invested. Theoretically, proportionally larger salaries should be paid to the proportionally more capable managers. But often this is not done. The money goes into the dividend fund.

There may be sound business reasons for this method of allocation—as, to improve a concern's credit by exhibiting a good dividend-paying record. But the practise necessarily confuses the issue, and is another factor that makes nearly hopeless the task of fixing by statute any fair percentage figure as the maximum allowable return on invested industrial funds.

The difficulty may of course be increased when those in the management who have charge of making the distribution, happen also to be principal owners of the capital stock. It may be alleged that the dividend fund is swelled while the wage and salary fund is starved. Workers are beginning to study balance sheets. They look with distrust on managers who distribute large dividends and pay low wages.

Here there arises a chance for a real clash of interests. And employees, because of the present constitution of industry, often resort to extra-legal means, as it were, to obtain what they consider to be a fair dis-

tribution of the proceeds from the articles which they share in producing.

These, then, are the principal purposes for which the proceeds of an industry are used: first, to keep the plant and equipment efficient; second, to pay the wages of money; and third, to supply the wages and salary fund.

Granted that the distribution of proceeds to these three funds is made with nice fairness, there still remains the problem of apportioning the wages and salary fund among the individual producers.

The difficulties of this problem have already been indicated—namely, how to determine the relative importance in the production process of the superintendent, the broom-boy, the foreman, the mechanic, and all others in the long chain from humblest to highest skill.

It is doubtful whether the money return for the various jobs can be determined except on a cut-and-try basis. The law of supply and demand is operative to a certain extent, over long periods, though the activities of unions have operated in considerable measure to check its full application.

#### THE INDUSTRIAL VERSION OF THE LAW OF COMPENSATION

The sum of the matter is, a bargain has to be struck. And the human fact, which finally underlies the application of every economic fact, is that a bargain in the long run is of no use to either side unless it is fair to both sides—to the employer, the employee, and, if the public's interests are involved, to the public also.

Newton many years ago stated a law of mechanics: for every action there is an equal reaction. Emerson phrased the corresponding moral law and called it "compensation." In business, the law might be phrased as follows: whenever an unjust bargain is

imposed by an employer or by a body of employees, the pendulum swings back sooner or later so that the one who profited originally by the unjust bargain loses equally by the later reaction.

It requires keen insight to observe the inevitable action of this general law in individual cases—and when the results are seen; the effect is not always attributed to the proper cause. Nevertheless, this law of compensation is as certain in its operation as the rising of the sun.

Fallacies of various kinds may serve to prevent fair bargains. Simple and axiomatic as is the statement already made, that a man is entitled to what he produces or its equivalent, and that a man who produces more should in the nature of things earn more, yet it is not unusual to find employers who come to the conference table positive in their conviction that a man who works with his hands can only be worth so much, regardless of what he produces.

And, of course, it is clear that the tendency of many union officials is to enforce the same fallacy among their members, automatically crushing initiative and the desire and delight of men in doing all that their abilities fit them to do.

This argument in the mouth of the employer can mean only that he is ignorant of simple principles of economics and industry. In the mouth of the union official, it is probably the result of take-care-of-yourself-as-you-can experience; or the further fallacious idea that the limitation of output means more work all round—an argument that is easily reduced to an absurdity, when it is realized that human needs are limitless; that production over and above what the individual requires for sustenance itself creates additional buying power and always incites the satisfaction of additional needs; and that, other things being equal, the greater the production the greater is the

need for production and therefore the greater the demand for labor.

A striking case of ignorance of fundamental principles, and even lack of ordinary common sense, came to light in an Atlanta candy factory. A young and uneducated chap from the back-lands of Kentucky was employed there as a porter. He made an uncouth appearance, and was utterly unable to impress his superiors favorably through his extrinsic merits. He had obtained his position because his employer also came from Kentucky, and he had held it because he had fair average ability under his uncouth and unfavorable appearance.

The lad was receiving \$27.50 a week. One day he approached his foreman and announced that he would quit that evening unless his pay were immediately advanced to \$45 a week! Somehow he had got it into his head that no man ought to work for less than \$45 a week, regardless of what he produced.

In a less complex type of industrial society, this lad would instantly have run head foremost into the economic law forcibly phrased by John Smith at Jamestown 200 years ago for the settlers who slacked in their work. If any one failed to produce, Smith ordered that he "be banished from the fort as a drone, till he amend his condition or starve." This modern instance seems far-fetched. And it is, considered on any rational basis. But the fact has to be faced that human beings are not always rational, and they normally act in accord with economic law, and receive the benefits to be derived from doing so, only when they are forced to it by convincing experience.

What conclusions are to be drawn from these premises? They are simple and inevitable. Wages in any given company can be increased only by increasing the amount of the wages and salary fund, which may be brought about:

1. By a different distribution of the proceeds;
2. By producing more per individual at a profit, so there is a larger fund to distribute, among the same number or a smaller number of persons, or among a larger number if the increase in numbers is less than proportioned to the increase in the amounts produced;
3. By effecting savings in the present methods of production.

Hitherto employees, by and large, have centered their efforts on making sure of a fair distribution of the available funds. In fact, as already pointed out, they have ventured to insist in certain instances—and occasionally have succeeded so well that some accept it as a generally true doctrine—that increases in individual production are not to their best interest.

It is admitted that the distribution must be fair. But it must be clear that there are indefinite limits to what can be distributed, so long as the total proceeds received for the product of a given concern remain the same. Sales of the product are a definite sum in dollars and cents. So much must go for maintaining the machinery and plant at efficiency; so much—a variable sum—must be paid to those who invest their money in the business, or they will withdraw it and the business will fail; and finally, there is the wage and salary fund. The higher wages that can result from mere juggling of the funds are negligible; those that may result from greater production are large.

Money wages have been greatly increased in recent years. At the same time in many occupations real wages—that is, power to buy as measured in quantity of goods and services that the money wages can buy—have also gone up.

In other words, although prices and money wages have both risen, there are many instances in which money wages have increased faster than the prices of

the goods that workmen buy, thus enabling a man to live better now than he did a few years ago.

It would seem high time, therefore, once the machinery assuring a fair bargain on wages is perfected, that greater emphasis be laid on the greater source of increases—increasing production per individual, that is, and cutting present production costs.

This conclusion is obviously of the utmost importance to employers and employees alike. Its application involves a thorough understanding of the principles. That may involve further the gradual education of employees and employers.

The employees' call for higher wages is clearly to the interest of the management, from a business point of view, if in order to make higher wages possible the employees are encouraged to increase production sufficiently to improve the rate of return all around. The interests of the two groups, in this respect, are not antagonistic. Here they are identical.

It would seem to be a sane policy to recognize just where the interests actually are antagonistic; and to provide satisfactory agencies for settling disputes. The guerilla warfare and irregular contests of industrial strife in the past have been costly to everybody; and have usually merely wasted the substance that might have been distributed in due proportion among all parties. With these clashing interests recognized and cared for, the task of encouraging greater production may be taken up with fair assurance of success.

These, then, are simple economic facts. Labor, naturally, must be assured of a fair distribution of the present proceeds before it can be induced to undertake hearty cooperation in any policy of larger production. Money in turn must be assured of a fair return before the owners will invest it in industrial enterprises. And the economic facts must be understood all round, if the proper rewards are to be obtained.

## CHAPTER X

### METHODS OF WAGE PAYMENT

*The two fundamental plans on which wage bargains are based; advantages and disadvantages of each; and some modifications designed to increase the incentive to produce.*

FROM the discussion in the previous chapter of the economic basis of wages, it is apparent that the determination of the *amount* of wages due in a given case depends on a number of factors. Quite similarly, the determination of the *method of payment* depends on varying conditions. The present chapter is devoted to a discussion of methods of payment commonly in use. And it is necessary to preface the discussion with the frank admission that there is no one best method. Every case is its own law, and the very wisest policy may be to have half a dozen quite dissimilar methods in force in the same organization.

It should be self-evident, as has been emphasized in the previous chapter, that the only reason for paying wages at all is to get results—production sales, good will, or whatever the specific result desired may happen to be; furthermore, the amount of the wages paid should depend on the character of the results. The fact that a man works five hours a day, or ten, or seven, is incidental. He is not paid for his time—he is paid for what he does during that time. Yet one of the two fundamental methods of wage payment gives no consideration, overtly, to this fact, and takes into account only the time the man spends on the job.

There is just this method of wage payment—the daily, weekly, or hourly wage—and the other—a piece rate, either simple or modified into plans of varying intricacy contrived to act as incentives to increased production.

Why is the day wage so very common? Adequate reasons have been indicated in the previous chapter. It is difficult at best to determine accurately what the individual produces, where operations are infinitely divided, and thousands are engaged in the process of fabrication. The day wage is, therefore, a makeshift, an approximation, and in hundreds of instances the only method possible.

When the share of the individual can be determined, however, and a yardstick can be applied to the results of his efforts, then the piece rate is, theoretically, far more desirable. For under this plan, if a man does more, he earns more; if he does less, his wages suffer proportionately. Stated thus, the matter is simple. But there are objections to the piece rate, arising for the most part out of errors that have been made by employers in the past. Not infrequently, piece rates have been set and then the men have astonished the management by the amount they do and the wages they earn. Resentfully, the piece rates are cut. Then the resentment shifts to the men, and forever after they look with mutual distrust on proposed piece-rate plans.

To meet this difficulty, some employers propose piece rates and guarantee that they shall not be cut. This, however, is not entirely fair to the management, for an honest error may be made in determining the rates; or new methods may be developed which make the old rate unfair. The common-sense arrangement is to have an established method of changing rates that is understood and approved by both the management and the men.

Let us consider in detail some applications of plans of wage payment, and variations of the day wage and piece rate that have been developed here and there with more or less success.

A New York concern operating under fixed piece rates has the following rules in force:

1. There is no limit to an employee's earning capacity, but the quality of the work must be up to standard.

2. The only condition under which the piece rate can be changed is by an entire change in the method or tool.

3. No rate can be changed until after the change has been approved by the supervisor of piece rates, the general foreman, and the foreman and assistant foreman of the department or departments affected.

4. When drawing numbers on parts change at the end of each season, provided the work and operation remain the same, the rate cannot be changed.

5. Any violation of these rules, or any attempt to check employees who have become experts in their particular line of work from turning in the full amount of their earnings, should be reported to the supervisor of piece rates.

6. These rules are not for one season only, but are the permanent wage policy of this company.

In many concerns, an established rate department looks after the setting of piece-work rates. The method is to secure a workman from the department in which it is proposed to set rates, and have him try out each job thoroughly before a piece price is determined upon. A study is made of the operations, methods used, and opportunities for improving the methods, before any definite piece rate is established.

Sometimes a stop-watch is used, sometimes not. All factors are taken into consideration, as the type of tool, upkeep of tool and machinery, time lost in

necessary auxiliary tasks, and so on. Where several shifts operated, that may also be taken into consideration. For example, one concern had considerable trouble keeping men on the night shifts. A special effort was made to put all single men on the night shift and keep the married men on the day shift. This helped somewhat, but there was still some difficulty. Then the company adopted piece-work, and offered the men a little more per piece on night work. This practically solved the problem. In fact, several married men on the day shift asked to be put on the night shift, while some of the single men said they would rather work for a little less a piece and work days.

THESE VARIATIONS OF THE ORIGINAL PIECE-  
WORK PLAN PRODUCE RESULTS

Group piece-work is a variation used commonly where it is impossible to determine individual production, but where the output of a group or a department can be accurately measured. That is the plan in one concern employing a number of girls, and it is modified in an interesting way by an offer of a higher rate for production above a certain point. Four girls form a group. The average output a day is 18,000 units for a group of four and each girl's earnings are \$2.25 a day, if the girls reach this standard. On "gang-work" the standard of 18,000 units is usually passed, and output is increased, sometimes running as high as 23,000. Up to and including 20,000, the rate of 5 cents a hundred is paid, but on the twenty-first thousand the rate is 6 cents a hundred, for the twenty-second thousand, 7 cents, and so on. Under this plan each girl averages about \$18.75 a week, an increase of about \$6 over the standard.

An interesting application of piece rates was made with unskilled laborers engaged in breaking bales out of cars and trucking them into two adjoining ware-

houses. The bales were about the same width as a bale of hay, but higher. The layout of the plant and the manner in which the bales had to be stored put mechanical conveyors out of the question. There was a good foreman on the job, but he could not see all of the men all the time. The stop-watch disclosed that except when under his eye, the truckers did no better than reach a speed of a mile and three-quarters an hour, whereas it was determined that any trucker could and should make at least three miles an hour.

Piece rates were set covering every possible combination of points of receiving, length of haul, and height of piling, and the men were divided into gangs of breakers, truckers, and pilers. Being paid for the amount that they did instead of for the time that they hung around the plant speeded all of them up, until not a man was earning less than \$4 a day, whereas before, the average had been \$3; and the force was reduced from 33 to 19 men. The company saved more than one-third of its direct labor cost, with greater satisfaction all around.

Bonuses are a variation of the two fundamental plans. Here is how a bonus is applied in one concern. The employer does not tell the men the rate; they know, simply, that a record is kept of the work they do, and that if they work hard all week there's likely to be \$2 or \$4 extra in the envelop on Saturday. This is not to be recommended for common practise, for men insist on knowing what their bonus is so they can figure it out for themselves, and try to increase it—but it has worked successfully in this concern, and goes to prove that there is no one best plan—the plan has to fit the circumstances.

The investigation in this concern showed that if a man packed a large number of boxes, his tonnage usually was low, while if he packed a small number, his tonnage was likely to be high. Sometimes, however, a favorable combination would give a man a

good figure in both. That man, the foreman then would usually decide, was above the average in ability. The present plan is to figure each box that a man packs at a given rate. For every ton over a specified tonnage he receives credit with an extra bonus. This is figured on every man every week. If his earnings at this rate fall consistently below his wages, he is dropped. If his earnings rise above his wages, the company splits the difference with him.

Length of service is desirable in most kinds of companies, and employers sometimes take this consideration under a bonus plan in determining wages. An Ohio manager has a service bonus whereby he pays each employee who remains in his employ for six continuous months, 10% of his earnings for that period. This bonus is for the day-workers, piece-workers, salaried employees, and all.

A Pennsylvania concern has a bonus plan which it calls a 'guaranteed standard'—that is, the workers are paid a weekly wage which they get whether they reach the standard or not. For instance, in type-writing work sometimes a typewriter out of repair affects the operator's speed, or perhaps a girl may not be well for several days, in which event she is guaranteed her regular wage. Each wage in the different departments carries with it a standard. A girl is paid a bonus on what she does above the standard. In the order-writing department there is a premium on the work done. When orders for the day are out, the girls do other work, but they can earn more while working on orders, than by doing other work. This gives them an incentive to go after the orders, and see that these get out first.

All in this concern doing the same type of work receive a fixed rate per hour, with this exception: that sometimes a new employee is started at a rate below this standard rate and must first show his

ability before being put into the regular class. He puts himself into the highest class automatically by making an average high percentage from week to week; an average of above 90% is considered sufficient. All pay is based on the percentage of work the employee gets out as compared with the set standard. For instance, if the standard is 100 per day and the operator makes 80, his percentage is 80; if 100 and he makes 100, his percentage is 100. Suppose Enders works 50 hours a week at 30 cents; his straight pay is \$15. When his working percentage is 80 he is entitled to 9% on \$15, or a bonus of \$1.35, making a total wage of \$16.35. If he has a working percentage of 100 he is entitled to 25% on \$15, or a bonus of \$3.75, making a total of \$18.75. The 9% and 25% is called the bonus percentage, as distinguished from the working percentage. Working percentage represents the amount of work done and the bonus percentage is the amount fixed or dependent on the working percentage, and it increases as the working percentage is higher. This is for the purpose of stimulating the interest of the worker. If an operator makes less than 68% he receives no bonus. He must do better or he is not considered a profitable employee. The bonus for 68% to 69% is 3% of the wages, for 70% to 71%, 4% and so on up, gradually increasing until 100%, where it is 25%. As an extra incentive, if the operator should reach 110% he gets an additional 5%, or 30%.

The success or failure of this plan, it has been found, depends on the fixing of standards. The standards should be a little higher than probably would be used for fixing piece rates. In other words, they represent as nearly as possible the highest production possible by the best operators.

A Detroit concern has a service bonus graduated according to length of service, which is paid to employees on the following basis:

Service	Amount of Bonds				
6 months to 3 years. . . . .	1%	of each worker's year's earnings			
3 to 4 years. . . . .	1½%	"	"	"	"
4 to 5 years. . . . .	2%	"	"	"	"
5 to 6 years. . . . .	2½%	"	"	"	"
6 to 7 years. . . . .	3%	"	"	"	"
7 to 8 years. . . . .	3½%	"	"	"	"
8 to 9 years. . . . .	4%	"	"	"	"
9 to 10 years. . . . .	4½%	"	"	"	"
10 years and above . . . . .	5%	"	"	"	"

A certain amount is distributed among foremen, on the basis of their salary and length of service. Another sum is distributed among supervisors of groups of departments and still another among the factory manager's assistants and superintendents.

A "tenure of service" bonus is the plan of another company. Under this arrangement the wages of employees are increased 3% after they have been at work one month, then 1% monthly up to a maximum of 12%. This bonus plan has worked out fairly well, and it has resulted in holding several valuable department heads who otherwise would have been tempted away by outside offers. While this plan appealed to the higher-priced men, it did not find so much favor with the rank and file, apparently because it took so long for the sum to become really appreciable.

An Indianapolis company has an arrangement which assumes that the salary of an employee is equivalent to that amount of stock in the company, and at the end of the year he is entitled to a dividend upon that stock, the same as though he were a stockholder. For instance, with a capitalization of \$400,000 and a payroll of \$100,000, the earnings are divided among \$500,000 worth of stock. This bonus is paid only to employees who have been with the concern for one year and who are still on the payroll at the dividend-paying period. This extra payment plan has reduced the labor turnover materially.

Another concern pays employees 10% of a year's salary in quarterly payments, in all positions earning \$1,500 a year or less. A bonus given by this firm to employees receiving a salary of \$3,000 a year or less is the anniversary or service bonus. They receive on their fifth anniversary a check for 5% of the year's salary and a service pin, on the sixth anniversary a check for 6% of a year's salary, and so on. Pins are given once for every five years' service.

THE IDENTITY OF THE BONUS AS A SPECIAL  
REWARD MUST BE MAINTAINED

It must be obvious from these examples that the bonus is a modification of the piece rate, but is usually not based directly on measurable production, and is often paid for something that the employer considers is desirable in his organization and does not know how to make sure of getting otherwise—length of service, cooperation, prompt and regular attendance, and so on. The tendency of bonuses is nearly invariably to dwindle in incentive value, unless a continuous and very obvious relationship is maintained between the amounts paid and the reasons for the payment. If an employee comes to accept the bonus as merely part of his wages, anticipates the money, and perhaps spends it in advance, there is no logical reason for preserving the payment as a bonus—it adds to the cost of bookkeeping, and will serve every purpose equally well if it is included in the regular wage. Where the result desired is kept clearly before employees, however, and no bonus is paid unless the employee does what is expected of him, bonus forms of payment seem to serve their purpose effectively. It is impossible in the space here allotted to indicate all types of bonus in use. There are, in fact, about as many as there are employers. Those already cited indicate the form taken in representative cases.

Closely linked up with bonuses are premium plans of various sorts. Let us see briefly how some of these plans work.

About the first premium plan, historically, was Halsey's. In this a standard is set based on past performance. As the workman improves his output, he receives as his reward over-time compensation equal to from one-third to one-half of the time saved. Thus, if the ultimate or high standard is 100 pieces in a day of 10 hours, and the approximate, or low standard (on which the premium is based) is 50% of this amount, and his day rate is \$2, the results would be as follows:

Pieces a Day	Premium	Day Rate	Labor Cost Each
20	....	\$2	\$0.10
30	....	2	0.087
40	....	2	0.05
50 (Relative)	....	2	0.04
60 (Standard)	\$0.20	2	0.037
70	0.40	2	0.034
80	0.60	2	0.032
90	0.80	2	0.031
100 (High standard)	1.00	2	0.03

A variation of this idea is that of Rowan. His plan, so far as standards are concerned, is identical with Halsey's. It differs radically, however, in that the percentage of incentive is greatest at the start, gradually falling off as production increases, and approximating zero as a limit. It works out that a man can never earn more than twice his standard day rate (the logic of this is questionable.)

The premium is figured as the same percentage of the day-wage rate, as the time saved is of the standard time. Thus, for a saving of one hour on the time allowed, the premium is 1-10, or 10%, while for saving all of the time, or doing 10 hours work in no time at all (zero hours) the premium is 10-10 or 100%.

Assuming the same conditions as before, this plan works out as follows:

Pieces a Day	Premiums	Total	Labor Cost Each
20	....	\$2.00	\$0.10
30	....	2.00	0.067
40	....	2.00	0.05
50 (Relative)	....	2.00	0.04
60 (Standard)	\$0.32	2.32	0.038
70	0.57	2.57	0.037
80	0.75	2.75	0.034
90	0.88	2.88	0.032
100	1.00	3.00	0.03
Infinite	2.00	4.00	Zero

Following Rowan's plan in point of time is the graduated premiums system sponsored by Harrington Emerson. As in the two previous plans, the day rate is guaranteed as a minimum. At 66 2-3% efficiency, premium payment begins. At first the increases are quite small, but they are cumulative and at 100% efficiency the worker's premium amounts to 20% above 100%, and the increase becomes 1% for each 1% of gain in efficiency.

Thus, for an efficiency of 130%, the man's premium would be 50%. As Emerson sets his standards basing them partly on time study and partly on past performances, 130% efficiency approximately equals the high standard. The comparative earnings of the worker and cost per piece, hence, would be shown as follows:

Piece a Day	Efficiency	Premium	Total	Labor Cost Each
20	28%	....	\$2.00	\$0.10
30	39	....	2.00	0.087
40	51	....	2.00	0.05
50	65	....	2.00	0.04
60	78	\$0.25	2.05	0.034
70	91	0.21	2.21	0.032
80	104	0.48	2.48	0.031
90	117	0.74	2.74	0.0304
100	130	1.00	3.00	0.03

In the task and bonus plan devised by H. L. Gantt, a bonus of 33 1-3% to 50% is paid for attaining the standard. For performances under the standard nothing extra is paid; above, an increase equivalent to a straight piece rate based on the cost at standard. Comparative earnings under this plan are:

Pieces a Day	Bonus	Bonus	Total Earnings	Total Cost Each
20	....	....	\$2.00	\$0.10
30	....	....	2.00	0.087
40	....	....	2.00	0.05
50	....	....	2.00	0.04
60	....	....	2.00	0.033
70	....	....	2.00	0.029
80	....	....	2.00	0.025
90	....	....	2.00	0.025
100 (Stand.)	50%	\$1.00	3.00	0.03
110	85	1.30	3.30	0.03

As in the other plans, the man never earns less than his day rate.

Closely allied in principle to the above is the Taylor differential piece-rate system. For standard (high) performance and above, the man receives one piece price; for performance short of the standard he receives another and much lower price. Assuming the same set of facts as with the other wage-payment systems and a low rate, approximately two-thirds of the high, the results will be as below:

Pieces a Day	Piece Price	Daily Earnings
20	\$0.02	\$0.40
30	0.02	0.60
40	0.02	0.80
50	0.02	0.90
60	0.02	1.20
70	0.02	1.40
80	0.02	1.60
90	0.02	1.80
100 (Standard)	0.03	3.00
110	0.03	3.30

The day rate is generally not guaranteed to the employee under this plan.

Still another payment plan along this line was worked out by a group of Michigan executives. It is similar to the Emerson plan in that it pays a gradually increasing percentage of reward as efficiency increases up to 100%. In common with nearly all premium plans it guarantees the day rate as a minimum. Unlike the Emerson plan, however, the differential begins at 50%, increases up to 100% efficiency at approximately, but not absolutely, a uniformly accelerated rate, the increase at that point being 50%, making the total pay 150% of the base rate. Above 100% the increase, as in the Gantt plan, is equivalent to straight piece rate.

Piece rate or premium, however, do not enter into the explanation to the man. To him it is a question of increasing hourly rates of pay for increased production. The individual earnings and the unit labor costs for the same set of conditions as assumed before work out thus:

Piece a Day	% Increase in Pay	Amount	Total Pay	Hourly Rate	Unit Labor Cost
20	.....	.....	\$2.00	\$0.20	\$0.10
30	.....	.....	2.00	0.20	0.05
30	.....	.....	2.00	0.20	0.057
40	.....	.....	2.00	0.20	0.05
50 (bonus)	.....	.....	2.00	0.20	0.04
60 payment	1.8%	\$0.036	2.036	0.2036	0.34
70 begins)	5.3	0.106	2.106	0.2108	0.03
80	12.	0.24	2.24	0.224	0.028
90	25.	0.50	2.50	0.25	0.028
100 (Standard)	50.	1.00	3.00	0.30	0.03
110	65.	1.30	3.30	0.33	0.03

Summarizing the six plans just described in comparative form we have the following interesting figures:

	(1)	(2)	(3)	(4)	(5)	(6)
Pieces a Day	Halsey	Rowan	Emerson	Gantt	Taylor	Detroit
20	\$0.10	\$0.10	\$0.10	\$0.10	\$0.020	\$0.10
30	0.067	0.067	0.067	0.67	0.02	0.067
40	0.05	0.05	0.05	0.05	0.02	0.05
50	0.04	0.04	0.04	0.04	0.02	0.04
60	0.037	0.038	0.034	0.033	0.02	0.034
70	0.034	0.037	0.032	0.038	0.02	0.03
80	0.032	0.034	0.031	0.025	0.02	0.028
90	0.031	0.032	0.0304	0.022	0.02	0.028
*100	0.03	0.03	0.03	0.03	0.03	0.03

Of the various plans, the Gantt and the Taylor are, perhaps, the most sharply stimulative; the Rowan plan is the easiest to get started; next is the Halsey plan which, in one respect at least, is the simplest of all premium plans in that the workman can so easily compute his extra earnings. The Emerson plan takes hold well, is moderately stimulative, but is commonly difficult for the workmen to understand; the Gantt plan is probably somewhat more easily understood, but is perhaps objectionable in the long run because it grants no reward for increases in efficiency under the standard. The Detroit plan is less stimulative than the Gantt and Taylor plans, perhaps, but more stimulative than the others, while it compares favorably with the Emerson plan in its uniform fairness at all points on the scale. Above 100% efficiency, the Gantt and Taylor plans are identical. It is in working up to that point that they differ.

These premium payment plans usually mean increased wages to the employee and a lower labor cost per unit to the employer, and have in many instances been very satisfactory. The instances in which they have failed are usually those where the employer has fixed rates unwisely and has later cut them. The very complexity of some plans is their worst enemy. If

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\*A reasonable maximum under thoroughly standardized conditions.

there is one thing every employee likes it is to know what ought to be coming to him in his pay envelop, and if there is another thing that causes his dander to rise, it is the idea that the management may be going through some shenanigans which he cannot understand in the figuring of his wages. Employees are prone to be about as suspicious as the rest of humanity in regard to anything that concerns their private interests. If the premium plan can be demonstrated to the men, if they can be made to understand it, and if its advantages for them can be proved, most any premium plan with a high incentive value will get results. If these cannot be made for the plan, it carries the seeds of its own failure.

The whole aim of the wage plan, of course, should be, first, fairness; second, an effective stimulus to production; and thirdly, what cannot be obtained without the other two, the banishing of all uncertainty and suspicion in the employees' minds. These are fundamental.

## CHAPTER XI

### ADVANTAGES AND DISADVANTAGES OF PROFIT SHARING

*There are limitations to profit sharing: what some of these are, and methods that have proved successful in spite of them, are described here.*

**P**ROFIT sharing is not new. The earliest plan was probably the "Metayer System," or "Farming on Shares," in England in the 13th century. In 1775 Turgot introduced a plan for his workmen in France. Shortly after this (1794) Albert Gallatin instituted the first plan in the United States in his glass works at New Geneva, Pennsylvania. These didn't last long.

In the 19th century, in England, Lord Wallscourt established profit sharing among his workmen in 1832, which lasted till his death in 1849. Later, in 1879, there was formed the French Profit-Sharing Society which issued regular bulletins. The schemes of Maison LeClaire and Bon Marche, started in the '40's, are still successful.

During 1889 profit sharing was so important in Europe that it was carefully defined by the International Congress of Paris as "an agreement, freely entered into, by which the employee receives a share, fixed in advance, of the profits." In this same year, according to N. P. Gilman's volume "Profit Sharing between Employer and Employee," there were 32 schemes for profit sharing in the United States.

From 1889 to 1900 the idea lost ground, for during that time the number of firms operating profit-sharing plans declined greatly. Since 1900, however, business has recognized its possibilities and by 1917 there were some 60 firms working under a profit-sharing system. Of these, some 50% of the plans have been established since 1911.

Profit sharing is introduced for different purposes. They may be grouped as follows: 1. To stimulate the elimination of waste and foster economy. 2. To increase efficiency. 3. To stabilize the working force. 4. To improve relations between the management and its employees.

In increasing personal efficiency, profit-sharing is an important factor. But this applies in the main only to managers and salaried executives who can see the direct results of greater effort and understand changing conditions. In this case a valuable sense of cooperation is developed which guarantees good management.

The stabilizing of the working force is aided by profit-sharing, in conjunction with other methods.

Profit sharing will not prevent strikes. It is a fact of general knowledge that one company had the biggest strike in its history two weeks after declaring a profit-sharing plan. However, profit sharing may help to bring employer and employee together on a right footing. There are three general types:

(1) "General profit sharing," which simply means that the employees share in the total profits of the business. A good example of this plan is that of the Cleveland Twist Drill Company, of Cleveland, Ohio. Here wage dividends are actually a share in the total profits of the company's business and are larger when the company makes more money and smaller when it makes less.

(2) "Unit profit sharing," where profits are shared in particular departments. This plan is used by such companies as the Procter and Gamble Company, where in some departments it is impossible to measure the individual's output, or where special savings can be made, or where the department is vital to the business.

(3) "Individual profit sharing." Under this plan the laborer shares in the result of the profits from his own labors. This applies mostly to employees filling positions of some responsibility. Such a plan has been in operation in the Dennison Manufacturing Company of Framingham, Massachusetts.

There are many things that profit sharing will not do. For one thing, it is not a panacea. It will not of itself make a poorly managed business successful. It cannot make up for lack of technical trade knowledge, business sense and executive ability.

Again, profit sharing will not substitute for personality in management. Profit sharing may give the workers added interest and zeal, but the men at the head must possess enthusiasm and leadership.

Some men think that widely-adopted profit sharing will do away with the existing economic order and usher in a better era. These men think profit sharing is socialistic, but it is not. For it takes for granted that the wage system is the permanent way of paying for work done in business and industry. Having accepted that, all that profit sharing can do is to add to that regular wage a payment in some form or other representing a share in the profits.

Most plans have been begun from the motive of self-interest. But many employers have adopted plans from humanitarian motives to benefit the workers, and increase their well-being. These feel it is only social justice. Indeed, one company in its rule book

says, "a business organization should be conceived as a real standing together of a company of brothers to take care of each other and enjoy a portion of their lives together."

Let us consider in some detail two typical profit-sharing plans, prefacing the discussion with an understanding that real profit sharing is nothing more nor less than the name implies—a dividing up of a portion of net profits among employees, the same as other portions are divided up among stockholders; and furthermore, the percentage shared may vary from as little as 5% of the net profits to as much as 50%.

The Hydraulic Pressed Steel Company of Cleveland has a plan which the president, Mr. Foster, describes:

"The first question we encountered was: Shall profit sharing include every employee, or shall we draw a line between those who share profits and those who do not? And if we do draw such a line, where shall it be drawn?

"Our answer was: There shall be a line. Profit sharing shall be extended to the managers and operators, but not to all employees. To understand our reasoning as applied to our organization, you must fully understand our worker classification plan.

"This classification of all workers in the company is:

"1. Owners: the stockholders who own our preferred and common stock.

"2. Managers: the heads of our various departments. These managers are the members of what we call the senior organization.

"3. Operators: in this division are the department heads, foremen, and unit bosses. And all of the operators are members of what we call the junior organization.

"4. Employees: those who work under the direction of the operators.

"If you look closely, you will see that the above is more than a classification. In fact, it is a promotion ladder. That's what we use it for, too. The employee in class 4, we point out, has the opportunity and should have the ambition to become a unit boss and thus become a member of the junior organization. The operators, again, have the opportunity and should have the ambition to become managers and members of the senior organization. And everybody—employees, operators, and managers—should in turn be ambitious to become owners and holders of stock.

IN DECIDING ON A FAIR DIVISION OF PROFITS, THE  
FOLLOWING FACTORS WERE CONSIDERED

"The executives and their assistants are the 'managers' of the business and they are members of the senior organization. The number of these men is of course small in proportion to that of the junior organization. In a way, too, it was easier to arrive at a fair division with them. I think it is sufficient merely to say that they get a share of profits depending upon our general success, and also upon their individual efficiency. But sharing profits with our junior organization called for the most careful planning in order to be fair to all concerned.

"The department heads, foremen, responsible clerks, and unit bosses are the 'operators,' you will remember. The line is drawn under the unit boss. He shares profits, but the employee under him is not a profit-sharer. The latter is recompensed directly for what he does by hourly wages and by a premium system. He is confined to direct payment for what he does, which includes extra pay for extra effort. And he has the opportunity and should have the ambition to move up into a unit boss position. The clerks and assistants who have not attained the responsibility which entitles them to membership in the junior

organization also have the opportunity to gain that membership.

"An employee becomes a unit boss, or operator, when he has earned and been given authority over a unit of the shop and controls those factors within his unit which affect profits. He shares in profits because he helps make them. That is, among other points:

"1. He is careful of his machinery and does not have expensive delays and repairs.

"2. He is careful of the use of oil, small tools, and supplies of all types.

"3. He prevents material being spoiled.

"4. He is determined that the material which leaves his unit shall be correct, and that his carelessness shall not cause a loss in some other unit.

"5. He keeps his unit clean and in order, and will not admit either that he likes dirt and disorder or that he cannot control it.

"6. He suggests to his foreman ideas for changes in his unit that will increase its production or decrease its cost.

"In brief, he thinks as well as acts; he knows what factors cause loss or make profit; and he does everything in his power to save loss and increase profit.

"This brings out the distinction that we often make with our men between production and profitable production. Production merely deals with volume, and is paid for in exact rates—by wages, piecework, or premiums. Profitable production deals not only with volume, but with quality, with economy. It involves thinking, carefulness. It is paid for by wages and by a share in the profits earned because of thought and care.

"At the beginning of each year the board of directors determines what percentage of the profits shall be set aside at the end of that year to create the junior pool.

The rate of dividend usually is from 18% to 20%; but in a recent year, after deducting 7% earnings for the preferred stock and 8% for the common, I asked the board of directors for 30% of the remaining earnings for distribution among the executives, managers, and operators. I also asked for a block of the company's stock to be sold to the men. They told me they wanted to share in the ownership, and so we went ahead on this line.

"To make our plan concrete and easily comprehended, we tell the men: 'You are entitled each year to a certificate equal to 10% of your wages for the year. On the wages of the current year and on the certificates of the preceding years of continuous service you will receive a dividend based on the company's profits for the current year.' And here's an example we sometimes use to make the plan clear: Let us assume that L. M. Stover started to work for the company on January 1, 1915. Now, we take into consideration all the wages that have been paid to him since that time, provided he has worked for us continuously.

"Assume that the wages for the various years were: 1915—\$900; 1916—\$1,000; 1917—\$1,100; 1918—\$1,200. Then 10%, the certificate amount, is \$90 for the first year; \$100 for the second year; \$110 for the third year; and \$120 for the fourth year; or a total for the four years of \$420.

"Assume that Stover's wages for 1919 were \$1,500. Then, the amount on which the 1919 dividend will be paid is \$420, plus \$1,500, or \$1,920. Let us say that the dividend rate decided on for 1919 is 18%. Now 18% of \$1,920 is \$345.60, which is the dividend that Stover would receive for the year 1919; if the rate is 20%, he would receive \$384.

"There are, of course, a few governing rules which are very important and the reasons for which, I believe, can easily be seen. They are:

"1. Only 10% of the wages of preceding years of continuous service share in the dividend.

"2. Whoever leaves our employ forfeits his certificates and when hired later he rates the same as a new man.

"3. The size of the pool depends on the management.

"4. If there are no profits, there is no pool."

The profit-sharing plan of the American Rolling Mill Company is described as follows by George M. Verity, the president:

"Every man whose salary is more than \$100 a month, automatically becomes a partner in the company. But to share in the net profits of the business he must be more than a good individual worker—he must also help the business as a whole to earn the profits in which he shares.

"He may do this in several ways. He must, first of all, show a real spirit and a partner's interest in the business. Through mutual interest activities he may help to make other men better workers. He perhaps gives the advertising department new ideas. The sales department may obtain an order through a "lead" he uncovers. He can be a good citizen and help in all things that make for stability in both industrial and community life.

"In short, the share of the profits he receives—on the day before Thanksgiving—is to pay him for the work he does in the company's interest, but without guarantee of extra reward unless it is earned through the good work of all. This dividend comes as a reward for the extra effort he has made for his company and his fellow workers, over and above his regular job.

"In deciding on the amount of his bonus, we try to make the money a fair measure of that extra effort, as related to the general result obtained. The total amount set aside for distribution as a dividend, or

for special compensation to special partners, is provided each year by resolutions of our board of directors. The total depends on the net profits of the company for the current fiscal year, and the prospects for profits the next year. While it varies from year to year, it always represents a fixed percentage of the net surplus of the current year, and it is always just as liberal as we can possibly afford to make it.

"Only those who have been with the company for 18 months preceding the end of the fiscal year are entitled to participate. Each man's share is decided from an analysis of the type of work he does; the responsibility of his position; the sort of service he has rendered in that position; the cooperation given to other special partners and to the company; the loyalty to all company activities; and the company spirit he has shown. While it is our custom to give special compensation in this way no man knows whether there will be a distribution this year, or next, or the year after. I want to emphasize particularly that we do not hold up a reward, and say, as it were: 'Here it is! Work for it!' We want every man to feel, rather: 'If I do my top best, and help along where I can, there will be extra profits to divide, and my reward will be adequate.'"

THESE AUTHORITIES TRIED PROFIT SHARING  
AND SAY IT HAS SHORTCOMINGS

The history of profit sharing is not an unblemished record of successes. In fact, there have been frequent failures, and some managers consider profit sharing an irritant rather than an aid in management. William R. Basset, president of Miller, Franklin, Basset and Company, cites the experience of Hugo Hirst, chairman and managing director of the General Electric Company in England, who says in this connection:

"I have personally, as far back as 20 years ago, made my first attempt. My intention was to try it in a modest way and if successful to extend it. I failed. In our articles of association as they then existed, I provided that 10% of all profits after an interest on debenture and preference share capital had been paid, should be given as a bonus to members of the staff. For three or four years this plan worked successfully, but it must be borne in mind that during those four years the company showed progressive results.

"About 1904, through no fault of the management, staff, or work people, a period of depression set in for the electrical industry. The net results of the company receded with the result that those entitled to bonuses received less. With scarcely any exception, I met with dissatisfaction and grumbling. Every man protested he worked quite as hard, even harder; each one assured me that the less favorable results of the company were not due to him; and each made a point that his mode of living, his expenditure, and his hope of saving, were calculated on the amount of the bonus for that year not being smaller than that of the previous year.

"The dissatisfaction and unrest created by the reduced bonus became so apparent that there was only one thing for me to do., I compounded the maximum bonus of each man with his salary and stopped further bonuses to all members who were in receipt of a salary of less than £400 a year. The man receiving £400 per annum I continued to give bonuses, but at no fixed percentage. The bonus was an amount given at the discretion of the directors in accordance with the result of the particular department in which the employee was working, levelled up or down more or less generously, according to the results of the year as a whole."

Mr. Basset also cites the following statement by J. W. Sullivan, of the International Typographical Union:

"Uncertainty is a disturbing factor in profit sharing—uncertainty as to whether there ought to be profits from year to year, uncertainty as to what the profits actually may be in any one year, uncertainty on the part of the employees as to the employer revealing his true profits, uncertainty as to the proprietorship of the establishment. In these uncertainties it is seen that the interests and expectations of a force of laborers are constant—the highest obtainable level in wages, hours, and working conditions—while the purposes of coming and going employers are variable, including selling out at a sacrifice or at a boom profit.

"In this unsettled profit sharing there usually can be no hand-in-hand partnership of labor and capital. The two interests work strictly apart, each in its accustomed sphere. Capital sees an opportunity, undertakes an enterprise, buys site and plant, decides upon the scale of production, manages the workshops, watches the markets, pushes sales, enlarges or diminishes the works, runs the risks—in all respects making the mistakes or supplying the strokes of talent that count in management. The industrial wage-working employee, while supplying the essential factor of more or less skilled manipulation of matter resulting in concrete production, projects no effort into the field of plan, production, purchase, and distribution."

And Mr. Basset, with a wide experience as an industrial consultant and student of business concludes:

"My own observation of profit sharing exactly coincides in practise with the experience of Mr. Hirst and my theory with Mr. Sullivan's. I have yet to discover any plan which did not fail when the profits ceased to exist, or even when they diminished, and those plans which have operated through many years

—and there are such—will commonly be found to depend upon the continuous success of some specialty business or upon the personality of the owner.

“And profit sharing cannot be a panacea because only 20% of commercial adventures show a profit. Before one can depend upon profit sharing to adjust labor trouble one must be assured of a profit. How many concerns then will tie themselves to a plan in which they are bound to guarantee a profit forever and a day?”

“Profit sharing” is an alluring phrase, and the idea is attractive. It must be frankly admitted that it has been a stimulus to productive effort in some organizations, and an irritant in others. In general, it is safe to conclude that it is not a panacea; it will not serve as a substitute for adequate wages, but must be paid in addition to them; and finally, the great danger in the plan appears when profits decline or disappear. In some cases the clear benefits derived so far outweigh these potential disadvantages, that the plan is eminently successful.

Boyd Fisher, supervisor of personnel of the Aluminum Castings Company of Detroit, has selected five profit-sharing plans which he believes are the best and listed their principal features under ten headings. The features which he personally prefers are printed in italics at the beginning of each subdivision.

# 1. HOW MUCH WILL WE SET ASIDE AS A TOTAL?

## BAKER MANUFACTURING COMPANY

*All above 5% to preferred or common stock, together with sinking fund and stock purchase fund, divided according to wages and dividends. All above an amount equal to wages and dividends, however, to go to stock purchase fund.*

## BOSTON CONSOLIDATED GAS COMPANY

1907: 7% on wages; 1908: 8% on wages; 1909: 9% on wages; 1910: 9% on wages; average total for 3½ years, \$238.

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### THE DENNISON MANUFACTURING COMPANY

After 8% on first preferred stock, 4% or more (as determined by by-laws) on second preferred stock, and 5% toward purchase of first preferred stock—after paying all that—one-half of remaining may be paid as dividends on Industrial Partnership Stock.

### NEW HAVEN GASLIGHT COMPANY

Every quarter 8% on wages of previous quarter, which is same dividend as capital gets.

### PROCTER & GAMBLE COMPANY

16% on first issue; 20% on second; 24% on third. Trust receipt dividends in addition to stock dividends above percentage on wages.

## 2. HOW OFTEN WILL WE CALCULATE PROFITS?

### PROCTER & GAMBLE COMPANY

*Semi-annually.*

### BOSTON CONSOLIDATED GAS COMPANY

At end of fiscal year.

### NEW HAVEN GASLIGHT COMPANY

Quarterly.

### BAKER MANUFACTURING COMPANY

Annually. Inventory includes as liabilities, stock purchasing fund, sinking fund, and face value of stock outstanding. Assets exclude accrued interest.

Excess of assets used.

1. To replace 5% annual preferred stock dividends from sinking fund.
2. To pay 5% annual dividend on common stock.
3. To pay into stock purchasing fund \$5 for every share on deposit January 1 subject to purchasing contract.
4. Ten per cent of amount yet remaining to sinking fund.
5. All the rest paid to preferred stockholders and to employees in proportion to dividends and wages.

## 3. WHAT FORM WILL WE GIVE THE PROFITS?

### BOSTON CONSOLIDATED GAS COMPANY

*Premiums apply to the purchase of one or more preferred shares of the Massachusetts Gas Company (the holding Company) at the then market price. Any balance remaining stands to the credit of employees, carrying 4% interest.*

### BAKER MANUFACTURING COMPANY

Nine-tenths in stock (common), one-tenth cash.

## PAYING WORKERS

## PROCTER &amp; GAMBLE COMPANY

(a) All dividends on common stock purchased for employee applied to purchase of same.

(b) Dividends (guaranteed 16%) on the contract itself (called Trust Receipt) applied to purchase of stock.

(c) After shares are paid up, cash for both dividends and "Paid-up Trust Receipt."

(d) Before actually giving stock, company may elect to give cash to the amount of the stock's market value. Paid-up Trust Receipt, which itself draws interest in addition to the dividend on stock, holds off demand for possession of stock.

## NEW HAVEN GASLIGHT COMPANY

(a) Credit for profits applied to stock at market value. Balance carried forward next quarter.

(b) Or, one-half of amount credited, may be taken in form of cash, at any quarter period, at employee's volition.

(c) Or, if discharged, paid in cash, *in full* (unless discharged for bad discipline, when he forfeits balance).

(d) Voluntarily leaving, draws half of credit; unless woman marrying, when she draws full amount.

## THE DENNISON MANUFACTURING COMPANY

Stock. (See No. 1.)

## 4. HOW WILL WE DISTRIBUTE THE SHARERS' PROFITS

## PROCTER &amp; GAMBLE COMPANY

(a) *Amount of stock may equal employees' annual wages and Trust Receipt dividends on that 16%.*

(b) *May subscribe 25% additional stock after being a shareholder 5 years and get Trust Receipt dividends of 20%.*

(c) *May subscribe to 15% of his wages if 10 years a stockholder and get Trust Receipt dividends of 24%.*

## BOSTON CONSOLIDATED GAS COMPANY

*Premiums calculated on salaries or wages for the fiscal year, not deducting any for sickness save after two months.*

## 5. WITH WHOM SHALL WE SHARE?

## BAKER MANUFACTURING COMPANY

*Any person who has been continuously in the employ of the company for 4,500 hours at the factory and has contracted to place on deposit with the company subject to purchase contract all stock he may receive as remaining wages shall become an "Honorary employee."*

## FOR AND AGAINST PROFIT SHARING 169

### BOSTON CONSOLIDATED GAS COMPANY

(a) To be eligible to share in the profits of the company, an employee must be in the employ of the company one full year before the fiscal year in which profits are shared. This equals a two years' qualification.

(b) Of these, only those selected by heads of departments, for merit. Claim this prevents its appearing wage increase. "Endeavor to make a list of profit sharers a roll of honor." A recommendation to employees leaving.

(c) No employee voluntarily withdrawing or dismissed during 12 months preceding distribution shall receive any premium for that year, but shall receive any balance due on previous year.

### NEW HAVEN GASLIGHT COMPANY

(a) All but executive officers may share.

(b) Provided they have been continuously employed by the company for one year.

(c) Only those who wish, and who sign agreement embodying terms set forth.

### THE DENNISON MANUFACTURING COMPANY

Principal employees including salaried officers. Seven years with company and earning \$1,200. Six years with company and earning \$1,500. Five years with company and earning \$1,800. When apportionment is made, provided they sign contract for extra remuneration.

### PROCTER & GAMBLE COMPANY

Any employee (except salesmen) earning not over \$1,500 a year. When advanced beyond \$1,500 can get no further Trust Receipt dividends, but must accept certificates of stock.

## 6. WILL WE ASK THE EMPLOYEES TO CONTRIBUTE?

### BOSTON CONSOLIDATED GAS COMPANY

*May help buy stock faster than premiums buy it for them; payments draw 4% interest from company.*

### PROCTER & GAMBLE COMPANY

Employee pays in cash, upon approval of his application, not less than 2½% of market price of stock. Every year thereafter till stock is paid for, must pay in cash, not less than 4% of the total amount of his subscription. Annual 3% interest on unpaid balance by employee.

### BAKER MANUFACTURING COMPANY

No.

### 7. WHAT WILL WE ASK THE PARTICIPANTS TO GUARANTEE?

#### NEW HAVEN GASLIGHT COMPANY

*Company may cancel agreement on week's notice if employee is wasteful.*

#### BAKER MANUFACTURING COMPANY

*If they quit for week without permission, they lose employment from point of view of profit sharing.*

#### BOSTON CONSOLIDATED GAS COMPANY

Company has sliding scale with public, and to share profits must help company take advantage of sliding scale.

#### THE DENNISON MANUFACTURING COMPANY

Penalty is loss of voting power.

### 8. WILL WE GIVE THE SHARERS A HAND IN THE MANAGEMENT?

#### BOSTON CONSOLIDATED GAS COMPANY

*Profit sharers nominate a representative of own selection to serve as director for coming year.*

#### PROCTER & GAMBLE COMPANY

(a) May be appointed, by directors, to the board of three trustees who hold stock for employees till paid for.

(b) Not being true stockholders, have no voting power.

#### THE DENNISON MANUFACTURING COMPANY

After \$1,000,000 issue of Industrial Partnership Stock all voting power vested in this stock, unless for a year dividends on 1st preferred are less than 4% or unless dividends for 2 years on 1st preferred are less than 6%, or unless dividends for 3 years on 1st preferred are less than 7%, when temporarily this stock assumes voting power. May be discharged like other employees.

### 9. WILL WE ALLOW NON-SHARERS?

#### PROCTER & GAMBLE COMPANY

*Employee may make application for withdrawal from plan, but if during semi-annual period draws no profit for any portion of that period. May withdraw at any time by giving notice in writing, and will receive money or stock due him, by surrendering pass book. If he withdraws before two years' participation in the plan, he shall have refunded to him only amount paid by him in cash, as contribution to purchase of stock. Profit sharing is intended only for permanent employees.*

BOSTON CONSOLIDATED GAS COMPANY

"We occasionally drop a profit-sharer from the roll, for cause, as a disciplinary measure.

NEW HAVEN GASLIGHT COMPANY

Agreement may be canceled on one week's notice. Officers empowered to stop the profit sharing with any employee at their discretion.

BAKER MANUFACTURING COMPANY

If employee sells any of his stock or draws it out of deposit he ceases to be an honorary employee and is not entitled to remaining profits for that year unless reinstated by vote of directors.

10. WHAT WILL WE DO WHEN EMPLOYMENT CEASES?

BAKER MANUFACTURING COMPANY

*Cannot become an "Honorary Employee" and receive stock without signing a contract to place on deposit and sell to company all such stock at market value (basis of last 100 shares sold) if leaving before age of retirement. If, however, an employee is retired, his stock goes on drawing dividends at 5%, and he gets \$5 per share toward purchase of same up to \$75, when, although he is three-fourths sold out to the company, he still holds stock and the dividends on it.*

BOSTON CONSOLIDATED GAS COMPANY

"Shares bought for employees shall be their absolute property." It is understood that they do not sell without approval of directors, under penalty of losing.

NEW HAVEN GASLIGHT COMPANY

(a) Shares "become his property absolutely to keep or sell as he may elect."

(b) Sums credited may not be assigned.

PROCTER & GAMBLE COMPANY

(a) Employee may demand a certificate of the common stock or cash equivalent at company's option, but, if so, paid-up Trust Receipt is surrendered to company and no more interest can be drawn upon it.

(b) Should employee make application for withdrawal from this plan (to get stock, say) before he has been a participant for two years, all Trust Receipt dividends that have been paid to him in cash shall be deducted and retained by company, from the cash returnable to him.

THE DENNISON MANUFACTURING COMPANY

Contract calls for resale to Company of Industrial Partnership Stock, or, at its option, issue of second preferred stock.

## CHAPTER XII

### A SUCCESSFUL PROFIT-SHARING PLAN

*A description of the profit-sharing plan of the American Sash and Door Company, with the reasons for its success; told by the president, F. J. Moss.*

**W**HAT we tried especially to avoid in the system of profit sharing which we put into effect in our business in January, 1919, was a merely arbitrary proportioning. Instead of agreeing to distribute among the workmen 25% or 50% or some other percentage, for which we could not give a reason, we endeavored to find a natural basis of distribution, a scientific basis, if you please, which would itself determine the share of the profits which the workers should receive in addition to their wages.

We decided that every factor in the business—capital and the workers—should be rewarded in proportion to its contribution to the business, as nearly as it was possible to determine that contribution. To determine absolutely what the services of a given dollar or a given workman are worth to a business is, of course, not an easy matter, but, practically, they are worth what it would cost to get other dollars or other workmen of the same grades. That is, at least approximately, what you have to pay if you are to continue in a competitive business.

Therefore we took the market value of the services rendered as a fair measure of the contribution of the different factors.

We pay around the top wages for this community to the various classes of labor we employ, and the wages are drawn out of our current funds on weekly paydays. At the end of the year—if enough remains after all operating charges have been met—the stockholders are paid 6% on their investment, which is the market value of capital here for businesses like ours.

Whatever profits there are above this constitute the fund for distribution among employees and stockholders under the profit-sharing plan.

Let me illustrate how the distribution is made:

Suppose the capital invested in the business by the shareholders is \$1,000,000, the total payroll for the year \$250,000 and the surplus profit for distribution \$100,000. Now my conception is that the annual payroll is the measure in money of the workers' contribution. Therefore the total capital invested in the business for the year is \$1,250,000. The workers having contributed one-fifth of the total capital, are entitled to one-fifth of the profit, or \$20,000. That is 8% of the payroll, and since the amount is distributed among the workers according to their individual earnings, each worker will receive 8% of his year's wages.

The remaining four-fifths of the profit is distributed pro rata among the stockholders.

But suppose the company should not be able some year to pay the 6% on the invested capital. The wages would, of course, have gone on during the year as usual, and no charge would be made against them, whatever the company's losses might have been, but it is understood that the interest due the capital would become a cumulative obligation. That is, it would be paid from the first earnings before the workers would be entitled to receive anything beyond their regular wages.

In order to offset the cost of breaking in new employees, it is understood also that workers will be

entitled to share in the profits only when they have been with the company six months or longer.

That is the plan in a nutshell.

I announced it in a printed statement to the workers. The statement not only showed how the system would work, but included a straight man-to-man talk on the conditions and objects that had prompted it. The reception the announcement met was, I think, due partly to these explanations. I quote a few paragraphs from the statement:

“With the coming of peace and the passing of autocracies, the long-suffering peoples of other nations are delirious with their understanding of freedom and self-government. They readily accept the teachings most agreeable, which include the getting of something for nothing and other similar destructive doctrines. The lure of possession without effort appeals to the unthinking and vicious and those of anarchistic tendencies, of whom there are more or less in all countries, including our beloved America, so that while we today can confidently look to the future, rich in opportunity, it is fraught with grave responsibility, if we are to avoid the turmoil that will surely follow a stupid or indifferent attitude toward the new order of things.

“The situation obtaining is such as to call for judicious and prompt action on the part of thoughtful men in whatever capacity they may serve and in all walks of life.

“So long as it is possible for selfish and unscrupulous men to profit by the misunderstandings of others, just so long will there be those who will seek to encourage class prejudice and conflict where harmony should prevail.

“With the coming of peace among nations, let us strive for a lasting industrial peace at home, by bringing about in our own establishments understanding

that makes for efficiency and good will, to the end that arrogant employers and undeserving employees may be relegated to the positions they should rightly occupy. The responsibility for curing these evils does not rest with labor alone, nor capital, but both. It is a question of good morals versus bad morals, and right thinking men and women in every station of life must combat these vicious influences with all of their reason and might.

"The time must come when organized labor will cooperate with the manufacturer in an effort to develop greater efficiency and reduce the cost of production. The present policy of organized labor is to reduce working hours and to increase the pay, seemingly overlooking one great economic fact, and that is that the human race will enjoy the necessities and comforts of life in the exact proportion that it produces them. . . . A nation of loafers will be a nation of paupers. We cannot labor a half-day and enjoy the fruits of a whole day's work.

"Our first aim should be economy in production. If organized labor would work to that end and then demand returns in proportion to its production, it would perform a real service to mankind."

#### A DEFINITE REACTION ON THE MEN WAS SOON EVIDENT

Within a week after announcing the system we noticed a favorable reaction on the working force. Our relations with our workers had already been good, but they grew better. The men caught the spirit of the plan. This was apparent not only from their comments but from their work. There was immediately a falling off in the number of spoiled parts and a general grading up in the quality of our output.

The improvement has been maintained. One of our city salesmen, a man who has been selling for us

for years, told me the other day that he had never before this year had so few complaints from customers.

Until this year, whenever demands for higher wages have come from the workers in either of the two local plants in our line, they have come in both. A few weeks ago demands for a 20% increase were filed in the other plant, and not a move was made in ours.

We have not, of course, taken advantage of the improved conditions to keep wages down. We had already raised our wage scale twice within a year, and when the demands were made in the other plant we were already considering another increase to meet the higher cost of living. Within a few days we did increase wages 10%. We shall both pay the same, but there is a good deal more satisfaction in it, and a better return in good will, when the adjustment comes about without demands. I know from my own experience as a worker.

This year our workers, thanks to the profit sharing and other arrangements, relied on our doing the right thing, and I wish you could have seen the enthusiasm the night I went down into the club room and announced the increase.

No single act, no single mechanism, or plan, ever produces peace and cooperation in a business. Our profit-sharing plan has been effective largely because of what had gone before. Without the established basis of good will, the same plan, no matter what explanations were put out with it, would probably have been a failure.

Many things, some perhaps a little out of the ordinary, have contributed to our people's good will toward the house. For instance, we built our plant in a pleasant part of town. We put it up about the time a boulevard was being extended. It was against the park board's rules to have a factory on a boulevard, but by agreeing to erect a building that would harmo-

nize with the surroundings, I got a special permission to put the factory on the boulevard extension.

The main building looks across the boulevard to a park containing a beautiful public bath house and an abundance of greensward, shade trees and flowers. The employees like these surroundings, but they like more the fact that they are in easy walking distance of attractive home districts, suited to all their purses.

Then I have made the building itself as comfortable as possible. It was built with ample lighting, ventilating, washroom and other facilities, but we have gone on improving it from time to time. For example, I noticed that the air in the deep basement under our main building was cool even on the hottest days of summer. On the same days the top floor was uncomfortably warm. We installed a suction fan to carry the basement air up to the top floor, and lowered the temperature there some 10 degrees.

I have tried always to see that our employees knew everything about the business that they wanted to know. One subject that they are periodically curious about is the wage scale in our line in the other producing centers. Couldn't they better their condition by going to Oshkosh or Denver or some place else? That question, I noticed years ago, occurred to them every now and then with great force, and was the cause of considerable labor turnover.

As a matter of fact, our wages compare well with those paid in all of the other mills. The facts were all that was necessary to cure our men of this wanderlust. I finally told them—this was 10 years ago—that whenever they wanted to know more about wages in the other centers and were not satisfied with what we could tell them, they could name a committee to visit the other centers at our expense.

The agreement has stood ever since, but the men have never made use of it. When workmen under-

stand that you are not trying to conceal anything, that often settles the trouble.

It is understood about the plant that anyone who has a grievance, or thinks he has, can come to my office, and walk in without telling anyone at the door his business. I not only keep the door open, I try to make the men feel really welcome.

Not long ago the night fireman came in. He had found that the day fireman was receiving more pay than he was. He had asked the superintendent for an increase, and it had been refused. The trouble happened to be simply that they had not threshed the question out. He had not told the superintendent why he thought he deserved the increase, and the superintendent had failed to find out and therefore to answer the arguments in the man's mind. When I analyzed the two jobs, and showed him the difference in work and responsibility between them, he went away satisfied with his old wages.

The men do not come in often, but I believe they like to know they can whenever they want to. Also, the arrangement helps to keep the men and the foremen reasonable in their dealings with one another.

HANDLING THE SITUATION IN THIS WAY  
SETTLED THE STRIKE IMMEDIATELY

I have had only one strike in the 30 years I have been in business, and that arose from the fact that the men did not appreciate some of the problems the front office was up against. They had not made use of their privilege of coming in and talking to me.

The strike was last year. I was around the corner at lunch when some one came and told me that the men in the machine shop and the boiler room had walked out. I went back and found them, about a hundred of them, standing out in the factory yard.

“Well, what's the trouble?” I asked them.

"We can't see why it is," one said, "that when shipyard workers are getting \$10 and \$12 a day, we are getting only \$4 or \$5. We decided we ought to have more, so we just struck."

I didn't rail at them. I told them I was glad they had put the trouble up to me squarely, and that I appreciated the chance of explaining the situation.

Then I told them how the shipyards were operating on the cost-plus basis, how profits were assured no matter how high their costs were and how the Government was willing to stand for high costs in order to get the output. I explained the entirely different basis that our business was on.

I had had to bid against all the other mills in the country for the ship joinery work we were then doing. I had bid on the basis of the existing wage scale. If the men demanded increases just then, our profits would be wiped out, and I would simply close the shop. That was all I could do.

One man protested, but he was followed by two or three who said they had been with the company several years and did not believe we would fool them, and that they were going back to work; that turned out to be the sentiment of the crowd, and so the strike was settled peaceably.

The men had simply needed to know something more about the conditions of management. They wanted, primarily, to see that the front office had nothing to hide from them.

It is to such miscellaneous experience and methods as these that the success of the profit-sharing plan has been due largely.

I do not believe that the plan is any less effective because it does not include more of the form of industrial democracy. Our system of management, we like to think, already includes a good deal of the democratic spirit. The men can find out practically any-

thing they want to know about the business and they can put their own views before the management at any time. Our relations with them are good only because, and so long as, we provide what they consider fair management.

When I announced the profit-sharing plan, I also proposed certain committees, not to be sure, to take over the general management, but to deal with working conditions. Only one of these committees has been organized, and it has not been particularly active. The men do not seem to care for committee work. So long as they feel that the work the committees would do is being fairly handled by the regular organization, they appear to be satisfied.

## CHAPTER XIII

### A WAGE PLAN THAT INCREASED PRODUCTION 40%

*A method of wage payment that has had a successful trial in England. There are some unusual incentive features to the plan.*

**T**HIS is a description of a plan which increased output 64% in the first month of its use, and 40% over a period of two years. The plan has the approval of every worker, from superintendent to office boy; is known as the Priestman Scheme of cooperative production; and the results described have been achieved in the Holderness Foundry at Hull, England.

This policy is based on the principle that if a number of men on ordinary day rates of pay are capable of producing in a given time a certain quantity of finished machinery, called the "standard," then if, without adding to the number of men employed or to the number of hours worked, by greater individual effort the output is increased, the day-rate wage is supplemented by a percentage equivalent to that by which the actual output exceeds the standard.

The scheme was first suggested by the firm to the foremen, in March, 1917. After the foremen had been consulted, the men selected representatives, who conferred with the management and then with the unions. The firm offered, as an inducement to the men to accept the scheme, to make an immediate and permanent increase of 10% of all wages in the factory.

After negotiations lasting several weeks the men approved the scheme, and it was launched. It is now piloted by the Works Committee.

The standard average output per month is ascertained, and might be calculated on a basis of:

- (a) The weight of finished machinery.
- (b) The weight of finished machinery scheduled under separate values, which may be known as "points."

At the Priestman works weight alone formed the basis of computation. But where there are many varieties of machinery, and the cost in wages as compared to that of material varies considerably, then "points" offer many advantages on account of their much greater flexibility.

The basis of the calculation at Priestman Bros. has now been changed to that of a combination of hours and weight. That is—number of hours worked and total weight of the corresponding output.

The table shown in Figure 17, "How Output is Based in the Iron Foundry," is a specific instance of the method used there.

This system of calculating by "man-hours" was introduced when the 47-hour week came in. So it will be seen that if more men are taken on, or the original number of employees works longer hours, the standard goes up. Conversely, if fewer men are at work, or the hours shortened, then the standard goes down.

Supposing the standard for the ensuing month to be set at 100. Then, if the production is increased to 130, under this scheme everyone in the factory receives a 30% increase on his basic wages for the following four paydays.

The second table, Figure 18, shows the standard rate of weekly wages in the Hull district for six skilled

HOW OUTPUT IS BASED IN THE IRON FOUNDRY.							
Week Ending	Laborers and Apprentices Under 18. Hours.	Mechanics* Hours.	Total Hours.	Weight.			
				Tons.	Cwts.	Qrs.	Lbs.
March 12	786½	1007½	4245½	53	13	2	10
" 19	801	1043½					
" 26	741½	1029½					
	2)2328½	3081*					
	1164½	1164½†					
April 2	754½	1081½	6557	65	2	2	18
" 9	804½	1133½					
" 16	867½	905½					
" 23	408½	608½					
" 30	686½	1164½					
	2)3325½	4894*	5634½	48	18	2	10
	1662½	1662½†					
May 7	704½	1077½					
" 14	678	1036½					
" 21	662	1079½					
" 28	688½	1075½					
	2)2732½	4268*	16437	167	14	3	10
* Actual.	1366½	1366½†					
†Converted.	Grand Total						

Figure 17: The Priestman Scheme is based on a standard output calculated at the beginning of the month. An excess over this amount brings added wages to every employee, proportional to the excess.

HOW WAGES HAVE KEPT PACE WITH RISING PRODUCTION								
Trade.	Weekly Rate per Man.	Plus Initial 10% Offered by Firm.	Total Amounts Payable, Including Wages and the Percentages for Excess Outputs.					
			If Output Exceeds Standard by					
			10% <sub>c</sub>	20% <sub>c</sub>	30% <sub>c</sub>	40% <sub>c</sub>	50% <sub>c</sub>	60% <sub>c</sub>
	\$	\$	\$	\$	\$	\$	\$	\$
Laborers	7.80	8.68	9.56	10.45	11.30	12.14	13.00	13.88
Machine Men	9.24	10.14	10.93	12.14	13.18	14.21	15.19	16.25
Turners & Fitters	11.18	12.28	13.51	14.70	15.91	17.20	18.40	19.65
Pattern Makers	11.90	13.12	14.42	15.73	17.08	18.40	19.69	20.99
Molders	12.14	13.36	14.70	16.03	17.38	18.70	20.03	21.38
Actual Advances on Day Wages		10%	21%	32%	43% <sub>c</sub>	54%	65%	76% <sub>c</sub>
The present War Bonuses are paid in addition to the above.								

Figure 18: This table shows how wages rise as production increases. Since these increased earnings depend on the total and not individual output, active cooperation among the workers is practically assured.

trades. The figures do not include the present war bonuses, which are paid in addition to the figures shown in the table.

From these figures, then, a molder, normally in receipt of \$12.14 per week, gets the 10% increase, which brings his wages to \$13.36. Further, if the output for the month exceeded the standard by 40%, then that molder would get an increase of 40% of \$13.36, or \$5.34; so he would get \$18.70 per week for four weeks, plus war bonus. Amounts have been converted into American units to aid the reader.

It is, naturally, extremely important that a standard be fixed which is fair to both employer and employee. In the Priestman works this is insured in the following manner. The Works Committee, which is representative of the six trade unions shown on the wage schedule, meets the management once a month. At this meeting the previous output figures are discussed.

THESE VARIATIONS OF THE PLAN ARE SUCCESSFUL  
IN OTHER TYPES OF PLANTS

In another type of factory the way to determine the standard would be this. If, up to the formation and introduction of the scheme, work has been done on the day-rate basis, then the output should be examined for a period sufficient to ascertain the average production of the different classes of machinery, and also what man-hours it took to execute the same. In shops employing piece-work the standard may be arrived at in a similar manner, the output under piece rate forming the standard.

Complete machines or machine parts brought into the works were provided for at the initiation of the scheme, and are included in the total output as though they had been manufactured by the firm.

In the case of repairs executed in the works, the wages paid for these repairs are converted into a

figure representing weight as follows: The average cost per ton in wages paid is estimated on the deliveries of machinery made that month. The total wages paid for repairs are converted into tons at this rate. This figure, in weight, is added to that of the total of machinery executed, so as to arrive at the excess over the standard.

At the works of Priestman Bros. the deliveries of machinery are fairly constant. Thus the arrangement for calculating the output for periods of four weeks works satisfactorily. In the case of another works, where the deliveries are less constant, the use of longer periods than four weeks for estimating the output would be desirable.

Improvements in the method of manufacture, or other considerations affecting the output, and consequently the whole scheme, are provided for, as the standard may be altered by mutual consent.

By fixing the standard in such a manner, the employer is not tempted to cut the piece rates. Further, there is no time when the arrangement becomes uneconomical to the firm as the result of increased reward to labor. Under this scheme, the increased payment varies in direct ratio to the increase in output. This results in a diminishing of cost per ton with a consequent wider distribution of overhead charges.

As mentioned before, when the production goes up, so do the wages of every single individual in the factory. This is only fair, because, if men in the shops are producing more, then this increase in output will naturally entail heavier work for the staff.

Should there be a time when a sufficient amount of work cannot be obtained to keep the works running at its full capacity, and the output has to be reduced accordingly, then the standard average weight is reduced, depending on the number of men and hours then worked.

It is essential in any scheme of this nature, that a standard rate of output be fixed which is fair both to the firm and to the employees. The Works Committee, which represents the nine unions employed at Priestman Bros., meets the management. Then, supposing, 60,000-men hours have been worked during the past four weeks, it is a simple matter to calculate the standard, once the weight of completed machinery is known.

The book showing the daily weight of machinery delivered is called for and inspected by the men's representatives. Everything is open to these men, no figures being concealed from them. The output is then discussed, and a standard for the ensuing four weeks is fixed. A notice of this is posted in the works.

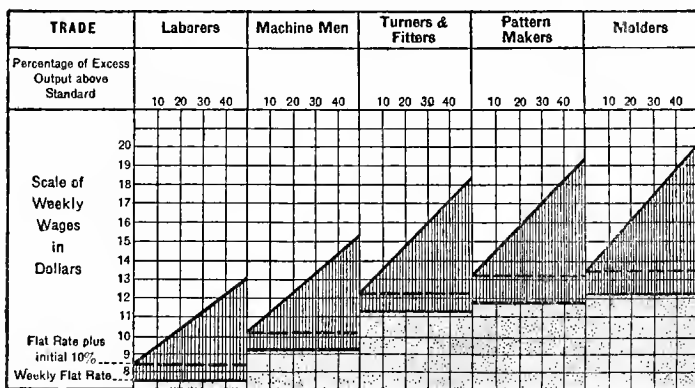


Figure 19: This chart shows graphically the relation between production and wages as shown in Figure 18. In addition to these output bonuses, additional bonuses help meet abnormally increased living costs.

Supposing the standard is fixed at 100, then if the total output at the end of the four weeks is 130, everybody, from the manager to the machinist, receives a 30% increase on his salary for the next four paydays.

The firm's apprentices come off very well in the scheme. They receive double the percentage. So

that, if the output is exceeded by 30%, the apprentices receive 60%. Apprentices do not get a very high rate, so the double percentage provided by the firm makes a little extra pocket money for them.

Thus an apprentice whose flat rate is, say, \$4.87 per week, will, if the standard is exceeded by 40%, get 80% on his rate—that is, he will be paid at the rate of \$8.76 for the succeeding four paydays. This alone is an incentive to labor.

At the outset of the scheme, the men objected to the treatment of the firm's staff. The staff had been in receipt of a uniform bonus of 50% of their wages. The men suggested, at a meeting, that the staff should receive the same percentage increase as they did, varying with the output figures.

The inclusion of the staff was deemed a wise measure as, though it is non-productive, the cooperation of the whole staff in securing orders, typing, estimating, and in other functions, contributes materially to the team-work in the factory.

It was recognized by Priestman Bros. that no scheme of payment by results will stand the acid test of criticism, if, while offering advantages to the workmen, means are not taken to secure the wholehearted assistance of the staff, seeing that the successful working of the scheme is dependent on the individual efforts of everybody, from the managing director and the general manager down to the lowest-paid errand boy.

As a result of this scheme, 450 employees last year were paid additional wages to the extent of \$116,880, or an average of \$258 per employee.

This scheme succeeds where many piece-rate systems fail, because the bonus is paid, not on the component parts, but on the finished product. Thus all departments contribute to this end. If one department slackens, the whole works suffer; so that all departments naturally take particular care that they

themselves are up to the mark for their own and their fellow workers' good.

In this respect the scheme is essentially cooperative, and the workmen would, in a bad trade period, far rather undergo an all-round reduction than that some of them should be laid off.

Besides the general rise in wages, another very desirable feature of the scheme is that the results are not attained by increased individual effort, but are wholly due to the spirit of cooperation and team-work between man and man, and between department and department. The men are, naturally, desirous of preventing any loss of time due to delay in the transference of work from department to department.

The scheme also promotes the desire in the men to help a fellow worker out of a difficulty, besides stimulating their interest in the production curve.

#### ANOTHER ANGLE WHICH ADDS FAVOR TO THE PLAN

Under the Priestman scheme, every employee recognizes the fact that his wage is dependent on everyone else in the firm. That is to say, Jones, who is a blacksmith, is a good worker and possibly rates at 100% efficiency, recognizes the fact that his bonus is also dependent on the efforts of Robinson, a fellow blacksmith, who is probably working at 70% efficiency.

Now, under a piece-rate, Jones wouldn't worry about Robinson, so long as he gets his own bonus. Under the Priestman scheme, he is interested in Robinson's work.

If Robinson is slack, Jones gets behind him. If he is merely incapable, Jones shows him "how."

The result of this is, that during Robinson's period of instruction at the hands of Jones, Jones's efficiency may fall to 90%; but Robinson's will jump to 80%. This, so far, makes no difference to their sum total efficiency, which is 170. Then the total increases.

Originally, the firm's blacksmiths did not come under the scheme, as they were employed on piece-work, but after watching the progress of the scheme, they asked to be included, and have benefited considerably by their decision.

Recently, to test the feelings of their employees on the scheme, the firm addressed three questions to the men, with a request that the replies should be in writing. These questions were:

(a) Does our scheme create confidence and good will between employer and employed?

(b) Apart from the increase in wages, does it help to raise the tone in the works, and assist in increasing the men's and youths' interests in their work, thus making the days pass more pleasantly than when they are paid on the day-rate system?

(c) Generally speaking, what is the opinion throughout the works of the system, and is it one that our employees can recommend to other firms as a means of allaying labor unrest?

In answer to these inquiries, the foreman of the fitters and erectors said:

"Previous to the scheme I had difficulty in getting one man to pick up another man's job. For instance, if a man stopped off work, they expected the job to stand until he came back. Now things are quite different; if I give a man half-a-dozen jobs during the day it is all in order, and, of course, it makes it easier for myself."

The foreman of the machine department appreciated the manner in which the firm's books were laid before the men.

"The opinion of the men throughout the works, and outside," he says, "is that the scheme is the best they have ever heard of, and they would very much like to see it introduced into other works. For myself

I think it a fine scheme, because we feel we are working for the firm and ourselves at the same time."

The blacksmiths' foreman said:

"The scheme puts a feeling into the workmen that the employer and the employee are working for one end—to benefit themselves, also each other. Therefore, it creates a good feeling between them. Having had experience with platers and riveters on piece-work, and smiths, drillers, and others, on the scheme, I can safely say the men on the scheme are far happier. There is the spirit of helping each other, but in individual piece-work there is jealousy, which causes bad feeling towards one another."

The foreman of the molders also mentioned the improved relationship between the firm and the men.

"We have now had experience with this scheme, and never, I am sure, in the history of labor, have employer and employee worked so amicably together under any scheme. We have now a combination of interest instead of an individual outlook, and nothing tends to make work a greater pleasure than to think each of us is helping one another."

The men's replies were very much in the same vein. The representative of the engineers says:

"My personal opinion is quite in accordance with the rest. I find, as a representative of the men, that your scheme seems to satisfy to such an extent that they almost forget to ask the old question: 'When is the next advance due?' I think that, providing employers have a really honest desire to allay labor unrest, the scheme, or one on similar lines, would go far towards reaching that goal."

The molders' representative said:

"The men were delighted with it. The days pass more brightly than they did under the old system; both men and youths seem to take more interest and pleasure in their work."

The representative of the blacksmiths says:

"The scheme certainly raises the tone of the works, as everyone is working towards a common end. In the old days of piece-work there was always more or less discordance in the smithy, and sometimes the ill-feeling went beyond discord. Now there is a more general feeling of good-fellowship; dissension is a rarity, and the men are far more ready to help each other. The opinion in the smithy is that the scheme is the very one required to bridge over the difficulties that may arise between employer and employee. As the interest of the employer merges with and becomes the interest of the employee, differences must disappear and confidence be established."

The firm of Priestman Bros. sums up the advantages of the scheme, from its point of view, as follows:

(a) Since April, 1917, capital and labor have been united; friendship and confidence have been established to a degree unlooked for at the time when the scheme was adopted.

(b) It creates a better morale throughout the works. Men assist the foremen in keeping their companions up to the mark.

(c) It overcomes undesirable elements which are inseparable from piece-work systems.

(d) Skilled and unskilled workmen cooperate in doing what is possible to expedite deliveries.

(e) It gives a considerable increase in wages to the employees, without it being necessary to increase the selling price to the purchaser.

(f) The scheme successfully achieves the object which all systems of piece-work are intended to secure, but which they often fail to do. It provides that the standard, which has to be exceeded before the workmen get any excess payment, shall be in machinery finished and dispatched, and not in details only.

## CHAPTER XIV

### PAYING A BONUS FOR QUALITY

*If quantity production alone is encouraged by the management's wage plan, quality may suffer. Here is the novel plan developed in a concern making a variety of products, in all of which quality is essential and hard to obtain.*

**A** LARGE manufacturing firm in New England found that, due perhaps both to disturbance in the labor market and to an especial unevenness in raw material, its product threatened to fall in quality below the high standard required by the company. In one room the tendency went so far that complaints began to come in from customers who had noticed the falling off. When a few returned goods came in, the managers looked ahead and took it as an advance sign of alarm.

In this situation the managers discussed the feasibility of using bonuses for improving quality. Some frankly stated that such a system was impracticable. The impossibility of a definite standard of inspection was thought to presage sure failure.

It was conceded that if the material were steel, which could be tested for hardness to a tenth of a unit with a sclerometer and gaged for dimension to a ten-thousandth, there might be some prospect of success. A steel standard can be reproduced exactly in different rooms and different months for comparison, it was argued. Paper can be tested for bursting and breaking strength, for folding, for chemical make-up. But this

company's product is typical of the great number of products for which a test by mechanical contrivance is not sufficient.

The particular room-product which showed the most dangerous decline in quality, as just stated, was also one of the most indefinite to test. Sheer "finish" was the thing desired. Inspection could only be by eye-judgment.

Yet every piece of product always has minute imperfections, some of which simply must be passed if the product is to be manufactured on a commercial scale at all. In the difficulty of determining by eye alone which pieces should and which should not be passed, lay the supposed obstacle to a definite measure of quality and therefore of bonus.

A study was made of the imperfections, therefore, and the kinds classified. Though each imperfection was very minute and would be undiscoverable by the ordinary eye alone, it was found that a number of them on the same piece had a cumulative effect on the appearance of the surface.

Therefore the inspectors were now required to count the number of each kind of imperfection on each piece, set each number down, and add up the total number of small flaws on the piece. Then the various numbers were compared with pieces which were admittedly good, passable, or bad. From this, standards were set by picking out certain crucial totals.

Now if the total of small flaws on a piece falls within a certain minimum, the piece is designated as of No. 1 quality. In the market this product commands special high prices. If the minute imperfections aggregate more than this minimum but less than a limit maximum, the piece is called No. 2 quality. This is marketable. Any piece having more than the upper limit of imperfections is No. 3, that is to say, out of bounds of the company's marketing standard.

A checking inspector at intervals makes assay tests on the already inspected goods, and compares with the first inspector's count-slip. It was found that the inspections agreed closely. .

Each piece, as fast as manufactured, is therefore examined not vaguely any longer, but mathematically, by the inspectors who set down with pencil and paper the number and kind of counts against the piece. So while it was perfectly true that inspection must always rely upon the eye, the formerly vague "judgment" is now eliminated, or at least it is no longer vague, since it is guided to a mathematical standard by definite knowledge. Of course any one big imperfection is in itself enough to throw that particular piece into class No. 3.

THE FOREMAN'S BONUS IS FIGURED  
ON THE THREE QUALITIES

The total amount of each class of quality turned out in the room is found and recorded, and on the high quality part of this total for all machines the foreman is given a bonus. His bonus for quality is figured on the three classes as follows:

If he should produce all his goods of No. 1 quality, he would be allowed a bonus of one-half of his salary. This is only an ideal, seldom quite realized. For a fractional output of No. 1 quality he gets a corresponding part of the possible bonus. That is, if 90% of his goods should be No. 1 quality and all the rest No. 2, he would collect 90% of his maximum half-pay bonus. If the goods were all No. 2, he would collect no bonus. No. 2 goods (medium quality) have little or no effect on the bonus. If the quality line for No. 2 is drawn so low that its production must be discouraged, a slight penalty may be attached to it also with regard to the foreman's bonus, but not nearly so great a penalty as that on No. 3.

For every percentage of No. 3 the foreman has a certain percentage subtracted from his possible bonus. The penalties are so proportioned to the number of pieces produced weekly that the foreman will always have some bonus left. In this way his maximum half-pay bonus is not impossible of ever being attained; to do so would discourage his incentive to improve the quality and cut out spoiled work. Since every piece of No. 3 thus nullifies some of his hard work higher up, he makes an especial effort to eliminate absolutely all unmarketable product. The saving resulting in this alone repays the company its investment in foremen's bonus.

But since his bonus depends on the amount of No. 1 produced, he is also constantly pushing the whole scale of quality, top and bottom and therefore middle, upward as far as possible. For it is worth his while to keep going up. Many foremen make now from 90% to 95% of their possible half-pay bonus, which to a typical foreman getting \$40 a week regular salary amounts to a total of \$58 or \$59. These figures are also an indication of the degree of success attained in the quality improvement.

Of course the foreman could not achieve the greatest success unless the operatives also have an interest in quality. The operatives' connection with the quality standard in this particular factory is through a parallel bonus, not for quality directly, but for quantity of No. 1 and No. 2. There is no bonus on No. 3.

As each varying prescription of material for a new job comes into the room, time-studies are made on it at some one of the machines by one man assigned from a time-study staff which is attached to the building as a whole. This staff has the operations standardized so that by a little observation allowance can be made for the variations due to different machines, weather, variations in raw material, and so on.

From the observation, a corrected task is set which will remain standard as long as that particular order is in process of manufacture. This is not very long, but the time taken to set the task pays, just as book-keeping pays in an office.

If the operative produces in excess of this standard task, he gets at the end of the day a white ticket apprising him that he has a certain proportional amount of bonus coming to him for that working day.

If, however, it is meanwhile discovered by the inspector's records that some of his product turned out during the day was of No. 3 quality, and furthermore that the amount of No. 3 equaled or exceeded his amount of No. 1 super-quality the same day, he gets another ticket, a blue one, canceling his quantity bonus for the day.

This quality cancelation on his bonus is on the same basis as the purely quality bonus to the foreman—that is, the production of all No. 2 quality by a given operative on a given day, without any No. 1 on the one hand or No. 3 on the other, would have no cancelation effect on his quantity bonus, since No. 2 quality is itself marketable. No. 1 also has no direct positive effect on the operatives' bonus for quantity, except that it gives him a margin of safety for the accidental production of No. 3. Cancelation does not take place if the amount of No. 3 is less than the amount of No. 1. This is found to give the operative enough precautionary interest in the production of No. 1 to secure a constantly increasing proportion of the highest quality. . .

Meanwhile the machine operative is looking out for production at the source. For his bonus, after quality is passed, is measured only by the amount produced. The foreman, however, does not participate in the quantity bonus. He gets a bonus for quality alone. So he keeps his eye constantly on quality.

It was feared at first that making quality the prime condition of everybody's bonus would in sympathy cause the standard of inspection to go down—that where the standard of inspection was after all only visual, it would become the openhearted or careless custom of the inspectors not to see many of the minute faults. On the contrary, the standard has risen.

After some months a complaint came in from the operatives of one room that the inspection had become increasingly rigid beyond all limits. Former inspectors, old-timers, were sent to give their opinion, and their unanimous verdict, together with a reinspection of goods manufactured and classified some months earlier, showed the standard all through the rooms to have been tightened.

WHY THE STANDARD OF INSPECTION THROUGH-  
OUT THE PLANT HAS RISEN

It was determined that this was due to education of the inspectors in exact observation of flaws in order to set them down arithmetically. They thus acquired, unknown to themselves, perhaps in some cases in spite of themselves, an educated standard by which they could not help measuring the goods. Every imperfection now looked as big as a house. With anyone else who could not see them, they were simply impatient. As they went on, they had the inevitable tendency of the connoisseur to boost his standards up.

As a result of the installation of this bonus for quality, the room with which the greatest trouble had been experienced began at once to improve the quality of its output, at first somewhat slowly, then rapidly. The curve of improvement was then steady, and soon the product was put higher in the market than it had been before the difficulty which caused the introduction of the bonus. Other rooms where the system is in use show the same uniform tendency in quality.

One of the quality graphs taken from an actual room is reproduced in Figure 20. It is laid out on the basis of percentages of Nos. 1, 2, and 3 product classified according to the number of minute imperfections as previously explained. It will be noticed that the proportion of No. 1 or extra-priced goods has gone steadily upward, and the proportion of No. 3 or unmarketable goods has gone steadily downward, in spite of the fact that the quality standard has meanwhile risen.

The foreman's quality bonus in this room is half of his pay if the product were all No. 1. For every percentage of No. 2 he has 3% subtracted from his 100% maximum, and for every percentage of No. 3 he has 10% subtracted. For instance, during one week the room turned out 180 "pieces," of which 17, or 9.4%, were No. 2, and 6, or 3.3%, were No. 3. Therefore  $9.4 \times 3\%$  or 28.2%, plus  $3.3 \times 10\%$ , or 33%, amounting in all to 61.2% of the foreman's possible bonus, are lost to him.

This is only a typical room. Graphs from all other rooms where the bonus has been working are similar.

Of course the quality bonus could be applied without the parallel quantity bonus. In that case some other precaution would have to be taken that constant preoccupation with quality did not cut down the quantity produced.

In this factory it is recognized that self-profit from either quantity or quality gives the operatives a special interest in certain auxiliary individuals—for instance the machine repairmen. A disordered machine is a bar to both quantity and quality. But it is essential to secure the repairman's cooperation in the good work, to offer him an inducement which shall also compensate him in some degree for the supposed demoniac fun he has in hearing himself cursed and pleaded with by operatives who need their machines

complete to make money with. So the repairman is also paid a bonus if the machines under his care make a bonus.

If all the machines in his stand succeed on a given day in making a bonus, the repairman gets, in one room selected at random as a representative sample, a "high bonus" of so much per machine day—amounting, say, to \$1.75 over and above his day wage. If, however, one of his many machines fails to earn a bonus, the repairman automatically falls to a "low bonus" rate even on the other successful machines.

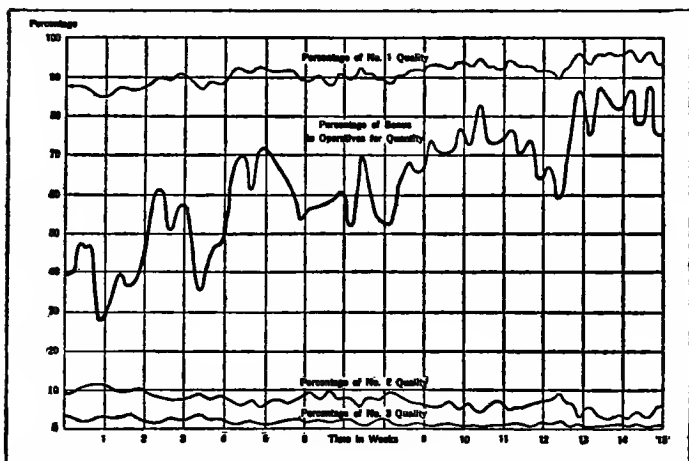


Figure 20: Giving the workers a bonus for quality production resulted in a satisfying reduction of "seconds," as shown here. Note the upward trend of the top curve, and the descent of the other two.

The low bonus rate is arranged to give him, under the new multiplication, \$1.20. This is a direct fall of 55 cents that day due to one machine. He, therefore, strives to keep all his machines tuned up to concert pitch.

This arrangement has created a new species of repairman who would not be recognized as such by an

old-timer visiting the factory. Repairmen now actually go looking for work, instead of having to be sought in back of the boilers or out behind the storehouse.

Here the traditional fight between the operatives and the repairman is over. The villain no longer works off any personal grudges by letting his enemy's machine stand maliciously idle. On the other hand no operative, however fanciful and fretful, has any reason to elect himself to the imaginary position of victim, for it is plain that the repairman in failing to reach him would only be cutting off his own nose.

So a great many quarrels are eliminated. Repairman and operatives are now allies, team mates, as all ought to be who are inside the same factory room, engaged in production of the same article. The old legend "Machine down for repairs" has almost disappeared.

Following the same principle, the schedule clerk who plans jobs for the machines gets a cent a machine a day high bonus if every machine on his despatch sheet makes a bonus. Any one machine which misses its bonus puts the schedule clerk back on a low bonus factor which totals a good deal less, and a certain number of defaulting machines cancel his bonus for the day altogether.

No cancelation of a bonus, or failure to attain a standard task, brings a man's compensation for the day below his standard day's pay. The man gets that anyway if he is present in the mill. Also, no matter how far a man falls under his bonus today, it does not of course affect his bonus for yesterday. Bonus once made, and countersigned for quality, is secure. All these bonuses are therefore figured on individual days. Each day is an era to itself.

A working day runs from noon to noon. This is not only the best for bookkeeping and prompt inspection reports, complete before nightfall, but it steadies

attendance. Even an operative who feels a trifle indisposed will, if he has a bonus day well started this afternoon, come to work tomorrow morning if he can, to complete his day. Then the odds are that he will remain for the afternoon, which links him to the following day, and so on. The application of the bonus for quality to this factory has, besides increasing quality, increased production in all rooms. Figures show a corresponding decrease in unit cost, even in a time when wages have universally gone up.

As a means of raising or maintaining quality, the quality bonus seems to the managers of this factory to have proved itself absolutely as a method that would inevitably have the same results in any factory. The best way of securing quality with help turning over at a dizzy rate is to make the standard of quality in some way mathematical. If a definite standard, or even a rising standard, can be secured with this product, the same psychology of education in exact minute inspection will secure it with other materials and products.

## CHAPTER XV

### GROUP BONUS PLAN

*If piece rates alone fail to get adequate results, appeal may perhaps be made to other incentives. That was done in this case, with excellent results—some of which are described by W. R. Basset and W. T. Fitzpatrick, of Miller, Franklin, Basset and Company.*

**T**HEORETICALLY, a worker on piece rates which are fairly set has every incentive to get maximum output. But every manufacturer knows that it doesn't work out that way.

I don't pretend to have found an unfailing specific for soldiering, but I do know that frequently the group economy bonus will get production when piece rates won't. A knitting mill I have in mind is a good example of what can be done by this means.

Our first step in this plant was to do everything possible to speed production by planning the work, and by supplying the most modern machines and methods that were available.

It then remained to stimulate the working force to extra effort. That the possibility of increase from that source existed had been determined by time studies, which showed that few of the operators worked at anything near their actual capacity. It was necessary, therefore, to find an incentive to get them to do more.

As all of them were on piece-work, it might seem at first thought that sufficient incentive already existed—that they would at least try to earn the maximum that

could be had without undue effort. It is right here that economics falls down when it assumes that all men are acquisitive and thrifty.

Although on the surface men and women appear to be acquisitive, most of them have set a certain weekly earning as their goal and when that sum is reached, they prefer leisure to extra money. There are exceptions, almost as rare as are misers, but I believe this is the experience most employers have had during the years of rising wages. In most industries where wages have increased greatly, it is the same—a worker lays off after having earned in four or five days the sum he used to earn in six.

Although this attitude is hard to account for with men workers, who more often than not have families to support, it is easier to understand—and harder to combat—with women who as a rule work solely for their own support. And most of the hands in this plant are women. Except for occasional middle-aged women, many female employees look upon factory jobs in a way as fill-ins until they marry. They seldom want more than enough to cover running expenses. Saving for the future makes no great appeal; their future husbands will provide the future funds.

With this condition to face—that added earnings easily attainable were not attractive enough to call forth extra effort—it may seem that no bonus plan would be effective. But a bit of psychology apparently gets in its subtle work here.

The group economy bonus is paid to everyone in a department. Its amount depends upon the efficiency of the department as a whole. Therefore, if any one worker is slack, the others in that department suffer. So, though the individual may not care for extra earnings, there are few whose consciences or whose fear of others' tongues will let them deprive their fellows of earnings they may want or need. For instance,

in one department employing women, enforced idleness with consequent decreased earnings resulted as the flow of garments from the cutting room, the preceding department, fell off. When, therefore, a cutter decided to take a day off, he brought upon himself such a tongue-lashing from those in the succeeding department, that he decided thenceforth to stay on the job.

The group economy bonuses were based on savings of three kinds: 1. Reduction of unit overhead expense through increased production, 2. Savings in expense material such as needles, waste, oil, and so on, and 3. Savings in direct material.

In order to set bonuses it was first necessary to install a system of cost accounting which would give accurate departmental costs, not only as to direct material and labor, but as to overhead expense. Then, for three months, normal costs were collected to furnish a basis for figuring future savings. These normal costs were those that obtained after the management had exhausted its ingenuity in attaining efficient operation.

WHAT SHARES OF THE SAVINGS MADE  
SHOULD THE WORKERS RECEIVE?

It then remained to determine a basis for sharing the savings made by the workers between them and the company. Although the management was primarily after increased production and would have been willing to give the workers all of the saving in order to get it, it was found that this was not necessary. We obtained not only more output as a result of the bonus, but in most departments a substantial money saving as well.

At the outset, it was understood that the bonus would be a definite measurable part of the saving and not a sop thrown to the workers at the discretion of the directors. That may work for awhile, but being

charity, and usually dishonest in intent, cannot continue long.

What was not wanted was an economy bonus like that once observed in a plant where a disastrous strike had occurred a few months after the plan was put on. The bonus had been introduced with much pomp and sanctimonious talk of "the square deal," "the right of the worker to share in the savings" and other pap of a similar, familiar sort.

Then at the end of the month, whether there had been a saving or not, the directors of the misguided concern said in effect, "Oh, well, they'll be satisfied with so much," and proceeded to pass it out with more platitudes. There was no predetermined basis of division, and it did not take the workmen long to find that out. They discovered too, that they got a bonus whether they effected economies or not. Before long, the men struck for more wages. Knowing that the bonus payment depended principally upon the unreliable digestions of the directors, they wanted to make sure it would be forthcoming, and they cannily felt that the best way to assure it was to get it added to their wages.

While the group economy bonus is no new thing, it is rare to find it strictly on the square; so square that the management is willing to explain just how it works, so that the men can see for themselves that there is a definite way of dividing the saving.

We started with the idea that no bonus less than 10% of the worker's wage would be an effective spur. The sky was to be the top limit. This was, therefore, the basis on which the work was carried on, and was, incidentally, the only part of the whole proceeding which was not mentioned to the workers. With this as a starting point, the basis of division for every department, productive and contributory, was worked out—and most of them were different.

Ten per cent above the wages, was set as the bonus to be paid for savings in overhead expense made by increasing production—any saving of material was to be given as an extra incentive. To show just what was done, it will suffice to describe the method of setting the bonus in two departments, one productive and the other contributory.

In the productive department, the overhead expense, exclusive of supplies, was roughly \$10,000 a month and the payroll to productive operators, all of whom were on piece-work, was also on an average of \$10,000. We therefore wanted to give a minimum bonus of \$1,000 for increased production. Time studies showed that it would easily be possible for the operators to increase their production 25% without increased fatigue. As the \$10,000 overhead should not increase materially for a 25% increase in production, this increase would result in a saving in overhead of eight cents a garment.

On a basis of the old production of 25,000 garments a month, this meant a saving of \$2,000—twice what was considered necessary to give as a bonus.

Therefore the workers in this department were told that they would get 50% of the savings in overhead, and it was explained to them in detail what overhead expense is and just how increasing production decreases the amount of overhead that each garment they turn out must bear. Two things were noticeable; first, that these mill hands, mostly women, grasped the idea quickly; and second, that they seemed glad to be taken into the confidence of the management.

In some departments where the fixed overhead charges were in a low ratio to the productive payroll, it was necessary to give the entire saving in overhead expense as a bonus, which the management was willing to do to get the increase in production. This was true in the packing and shipping department, for instance.

On top of this bonus was given throughout the mill a flat half of the saving in material whether it was direct material like cloth, or indirect, like needles,

When the bonus plan was announced, the exact basis on which the plan was figured was explained to each department. The workers were told that if they wanted to see the records, any department could elect a committee of two which could examine all of the records for that department.

The workers were also told the whole story back of the bonus; that the management had done all it could to boost production, even to hiring outside engineers to come in and better the plant in its methods; that further improvements were undoubtedly possible but that they could only come from the increased efforts of the workers themselves.

They were further assured that the present basis of bonus would not affect their piece rates and that it would remain in force for six months.

It was explained that outside influences, such as the price of material, fluctuated and that aggregate change in price might work an injustice either upon them or upon the company unless the basis of division was changed from time to time to conform to these outside changes. They accepted this idea as fair. It was guaranteed that the basic operation expense upon which the bonus is figured would not be changed because of economies they might effect. In this respect, incidentally, this plan differs from most others of the sort. It is obviously not fair when a worker improves his methods to make the new standard the normal on which his future bonuses shall be based. The best that the management has been able to attain must remain the normal.

After all, however delectable a method of this kind may sound, the real proof of its value is in the reaction of the workers to it.

Possibly the most interesting incident following the introduction of the bonus was one in which the general manager, dye boss, millwright, and foreman were all involved. It was the general manager's contention that the dye house could be operated on 80 pounds of steam as well as on the customary 110 pounds. The dye boss objected, saying that his production would be seriously curtailed. Deeming it unwise to cross the boss, the idea was dropped.

One day, however, the foreman and the millwright dropped in on the general manager with the suggestion that on the next Sunday, unknown to the dye boss, they put a reducing valve on the steam line to the dye house and let it operate on 80 pounds and note the result.

The general manager agreed, the valve was installed and the figures show that the dye house production has steadily increased. The foreman and millwright are now sharing \$8 a week, as about 600 pounds of coal a day is saved directly as a result of their interest.

The management does not sit back, however, and trust to the ingenuity of the workers to show the way to savings. It frequently gets out printed slips showing what savings have been made and suggesting other possible savings. While as a rule, the workers themselves, being closer to the work, see the opportunities first, the management nevertheless knows many places where economies might be practised but has had no way to achieve them heretofore.

But after all, the saving of material in this case was of secondary importance. Our aim was to increase production and while the management welcomes savings that reduce costs, it looks upon the saving of material chiefly as a way to let the workers increase their bonuses.

The first month's operation under the economy bonus showed notable increases in production throughout the plant. Today the plant is, as a whole, turning out 26% more garments than before—as a result.

## CHAPTER XVI

### A BONUS THAT DOUBLED PRODUCTION

*At a critical time, when the Jewell Electrical Instrument Company was losing money because of low output, the plan described here by Orval Simpson, president of the company, served as an effective remedy.*

A SERIOUS problem confronted us. Production had fallen off rapidly. A vague feeling of dissatisfaction was going about the shop, and there seemed to be a possibility that we would lose some of our workers—trained workers that we would find it almost impossible to replace. A careful analysis of the books showed that for several months we had actually been losing money.

It was certainly time to do something. We had to take a step that would make or break us.

We worked out a bonus scheme, put our problem fairly before the men, and they responded. Our production doubled what it had been during the seven preceding months.

Here is how the situation arose. During 1918 we were working on government contracts because we couldn't get the raw materials to carry on our usual business. Patriotism and the stress of war conditions kept the employees' interest at a high pitch and production at a high figure.

When the armistice was signed, our war contracts were canceled, and we were left temporarily without our usual business. Of course, we got out after orders,

and soon were back to normal so far as work ahead was concerned. But for a time there wasn't much work to do in the shop, and what there was didn't get done in the usual quick time. Interest slumped, and so did production.

Right here another problem entered. Our shop isn't a big one. But a majority of our employees are carefully trained to do the delicate and specialized work that we turn out. It takes a long time to teach a worker how to do his job right. There are no competitive shops within a wide range, so our field for employment is limited to the workers we train ourselves. To have any considerable portion of these leave at one time would have been disastrous.

Then our books, which showed a deficit each month, couldn't be dodged. We were face to face with a problem that had to be met squarely and quickly.

Now, you can go into the shop and talk to the men about speeding up. You can urge them to turn out more work a day. But such a plan won't get big results. So we turned our efforts to a bonus scheme.

We worked out a plan that had no strings to it. It wasn't based on increased production. It had no conditions whatever. We simply arranged to pay each month to one-twelfth of the total number of workers 8% of their earnings. Just how the details were arranged I'll tell you in a moment.

Then we went to the workers, told them frankly that we were losing money, and that the business was in a critical condition. We told them just what our problem was. Then we told them about the bonus plan we had worked out.

We didn't ask anything in return. Instead, we said to the workers that they might wonder how, with the business already a losing proposition, we could afford to pay them more than they were then getting if we weren't to get anything in return.

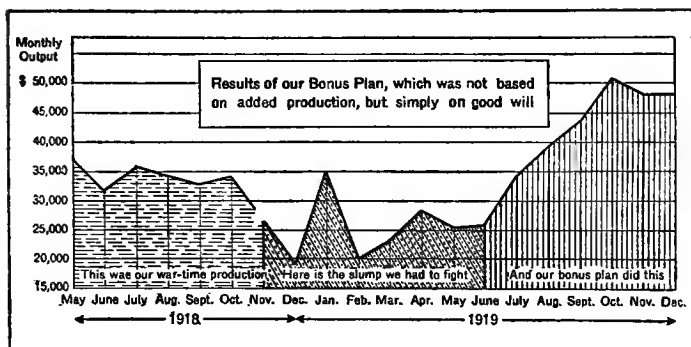


Figure 21: When this company's production dropped so low, during the armistice period, that it was losing money, it had to come back with a jump or not at all. This chart shows what the bonus plan did.

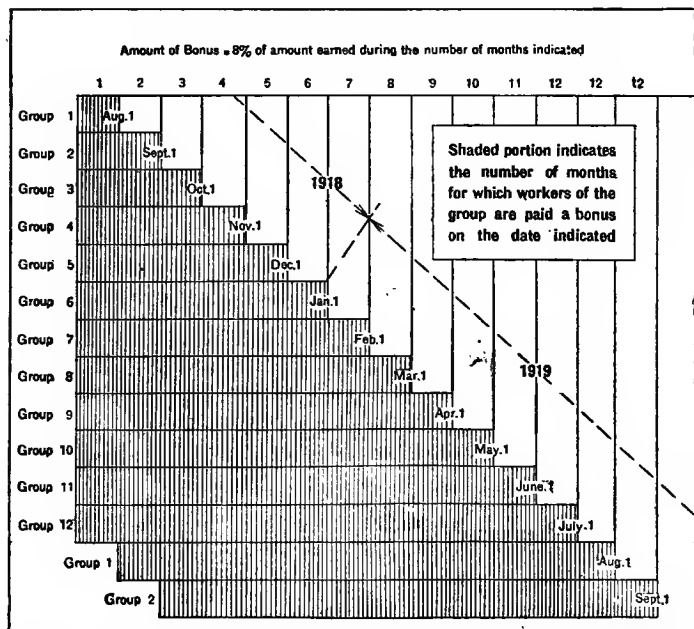


Figure 22: During the first year, the employees received only a part of a year's bonus. For example, Group 5 received five months' bonus on December 1. After the first year, each group gets a full year's bonus.

We couldn't afford to do it, we told them, but we proposed the plan to them in the hope that they would see and appreciate our difficulties, and meet us half way. But we put no conditions on the bonus. The workers would receive that anyway, we guaranteed.

That was on July 12. The bonus plan was dated back to become effective July 1. With the proposition laid before the employees, we left them to their own conclusions. Immediately we found that our confidence was justified.

Production output which had been hovering about the \$25,000 mark—monthly—for seven months, jumped to \$35,000 in July. And it continued to go up, until the October, November, and December output figures were just twice the average monthly output of the first six months of the year. This all took place with only a slight addition to the working force that had been putting out half the amount during the early part of the year. Not only that, but unrest and dissatisfaction among the workers disappeared.

[HERE, PERHAPS, IS AN ANSWER TO  
ONE OF YOUR PROBLEMS]

Here is the bonus plan as we worked it out. It may not apply to every shop and we do not claim anything unusual for it. But it solved our problem in a way far better than we had hoped.

The usual lump bonus has its disadvantages. Suppose our weekly payroll were \$3,500—which is an assumed figure. Multiply that by 52, and take 8% of the total. That's nearly \$15,000—too much to pay out in bonuses at one time for a shop of our size.

Then, too, a bonus based on production involved an exact, accurate check on costs. If 10 men are added to the working force, too much computation is involved in determining an equitable bonus based on production. An element of uncertainty for both

the management and the workers is always involved in a production-basis bonus.

Then there's another point against the lump bonus. There might be in the shop a group of workers who for some reason or other are dissatisfied. This group might comprise all those on a certain kind of work. Just after the lump bonus is paid this group might make heavy demands which we would find difficult or impossible to meet. In our business we couldn't afford to have such a group walk out on us, because it would take weeks, and even months, to train workers to fill their places.

So for our bonus plan we divided our employees into 12 groups. These groups were not equal numerically, but the salary totals of the groups were about equal.

For the first group we picked men who had been with the company a year or more. Each group contained workers from all parts of the plant. For example, there would be workers from the office, from the toolroom, from the assembly benches, from the drill-press department, and so on.

This method of selection was chosen for two reasons. First, no one set of workers from the same department could combine to present unusual demands at the same time their bonus was due, because their bonuses would be due—as I will explain—at 12 different times during the year. Then, too, we saw a value in having the entire shop reminded once a month that the bonus plan was in effect and being carried out as we had promised.

The bonus check is delivered in a large envelop bearing in bold red letters "Bonus Check." The envelops are delivered on the first day of the month—or on the second, if a regular payday comes on the first—by one of the office force who goes through the shop and lays each envelop on the bench or machine of the worker to whom it belongs. When a worker

on the assembly bench, for example, receives this distinctive envelop, all the workers on either side are reminded that within the next few months they have similar envelops and checks coming to them.

All the bonuses of one group are paid each month. Our plan provided that on August 1 all the workers in Group 1 received one month's bonus, on September 1 the workers of Group 2 received two months' bonus, and so on until August 1 of this year, when Group 1 will receive a full 12 months' bonus, and thereafter each group will receive its year's bonus on the first of the month corresponding to the original schedule.

From the workmen's point of view there might be an objection that we were planning this bonus from the management point of view without any regard to the worker's interest. This is not so. We have not made this plan to harm the worker, but to help him. The way our employees have responded ought to be sufficient evidence that the scheme had pleased them. Of course we planned to protect as far as possible our interests, but that is the first essential of every management plan, and in protecting our interests, the interests of the employees are also protected.

How the plan has worked out has already been indicated. The production curve which is shown on page 211 tells better than words what the results have been. The figures—also slightly changed, but all in exact proportion to the real figures—indicate how it has increased, since our bonus plan went into effect, to a figure nearly 50% higher than that which we were getting even during the war.

The bonus plan treats everyone alike. And because it does this it has brought a harmony among workers, which had never been known before in the plant.

## **PART III**

### **LABOR TURNOVER AND COSTS**



## CHAPTER XVII

### HOW TO FIGURE LABOR TURNOVER

*What labor turnover means to a business, what it may cost, and a standard method of figuring it.*

**T**AKE the "temperature" of a business in terms of labor turnover, and you have a fairly accurate index of the state of health of that business, in so far as its labor management is concerned.

Why does this test so often indicate an advanced case of labor *mis*-management? Why should a plant normally employing 1,000 people have to hire 3,000 or 4,000 in the course of a year to keep the force up to normal, as so often happens? Why do the doors of employment in many concerns swing outward as easily as they swing in? Are the vast masses of workers naturally unstable? Do they find a keen enjoyment in perpetually chasing new jobs?

There are natural causes for a portion of labor turnover. Death, health, age, sudden opportunity account for some changes in personnel, and such causes are unavoidable. But these causes are far in the minority, when the total turnover in business is summed up.

This is a vast, perplexing problem, aggregating economic wastes to individual businesses and to the nation that cannot be measured accurately, and must be merely guessed at. Judging from a variety of experiences, the total loss must be immense. It is a condition that eats into production, disturbs organization, and threatens net profits.

And what is the reason for it? There obviously is no one reason; there may indeed be dozens or hundreds. Some condition exists, or some situation arises, which leads a worker to believe that he is mistreated or is most unhappy in his present job. He would rather quit the job than stay on. So he quits. Or he is fired for perhaps some equally insubstantial reason. That's all there is to it! But who is to blame? The man himself? Sometimes:—he may be utterly unsuited to work in the surroundings in which he finds himself, even though the conditions appear ideal to 99 out of 100 of his fellows. That, however, is not the typical case. Mostly, the blame goes direct to the door of management. The employer fails to keep up a place which men find so very congenial that it takes something more than an ordinarily disgruntling incident to make them quit.

Run through the chapter headings of this and the companion volumes, and in each you will find a reason for or against a high labor turnover—for, when the wrong methods are used in handling that problem; against, when the right methods are used. When the turnover is excessive, either the whole attitude of the management toward the men is wrong, or if it is right there are lapses in administration—foremen do not carry out the company policy; complaints are not heard and corrected; the community lacks adequate housing; good men are put at the wrong kind of work; there are misunderstandings about wages; fellow-workers prove uncongenial; working conditions are unpleasant or unsafe; the hours are too long; and so on, through the whole list. Such mistakes occur occasionally in the best-managed plants—they cannot be avoided. When the workers have confidence in the management, the mistakes tend in most cases to take care of themselves without serious results. But when the air is charged with suspicion, the most

picayunish annoyance may send men on silent strike, through calling for their time.

Thereupon the costs of labor turnover begin to appear. Advertisements have to be run, perhaps. There is the clerical, executive, and overhead cost of hiring. Somebody has to train the new man. There is unusual wear and tear on machinery and tools during the training period. The loss of production during the period is a most important factor. Spoiled work and mistakes may trail their consequences through a long chain of multiplying costs. The new man is more likely to get mixed up in an accident than the old. And then there is the investment, with interest charges, in extra equipment that must be kept on hand to take care of decreased production resulting from a high labor turnover. One employer who counts in all of these items, figures conservatively that it costs him on the average \$59.75 to set a new man to work. Another employer, by one method of computation, figured the cost of a single replacement at \$334; and by another method at \$444! Definite costs are hard to get, owing to the multiplicity of factors requiring consideration. But it is obvious that the average cost per individual is appreciable; and when, as in a Pittsburgh concern steadily employing 16,000 men, it was necessary to hire and fit 30,000 men in one year to maintain the normal force, the dollars-and-cents total begins to be appreciable—even appalling.

All this does not take into account, either, the possible social cost—the fact that many men become chronic floaters, unstable in their habits, permanent minimum-producers, and sometimes feeders of the criminal classes.

With these facts clearly in mind, it becomes apparent how important it is for employers, merely as a matter of self-interest, to do whatever lies in their power to

minimize labor turnover, in so far as it is unnecessary or undesirable. This chapter is not the place to discuss methods. All that has gone before in this and the companion volumes is directed more or less to reducing turnover. Everything that effects betterment in management is conducive, other things being equal, to a lower labor turnover. Here we need consider only methods of computing turnover, and methods of finding out what the turnover really is.

It is clearly desirable to have a standard method of figuring, in order that different concerns may compare results. The following is the plan submitted and approved at the Rochester meeting of the National Association of Employment Managers:

First, find the total separations for the period considered and divide by the average of the number actually working each day throughout the period. Then multiply by the proper factor to reduce to a yearly basis. The following example shows the method of computing the percentage for one week.

Total number of separations during week.....	300
Daily force reports (workers actually on the job):	
Monday.....	1020
Tuesday.....	1065
Wednesday.....	1070
Thursday.....	1035
Friday.....	1040
Saturday.....	990
Average for week.....	1037
Percentage labor turnover $300 \times 52 = 1504\%$	
	<u>1037</u>

The method of computing the percentage of labor turnover for one year, assuming that records of daily attendance are averaged for each month, is as follows:

Total number of separations during the year.....	5020
Average number working each month as determined from the force reports on daily attendance records:	

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May .....	2040
June.....	2100
July.....	2000
August.....	1980
September.....	2200
October.....	2220
November.....	2280
December.....	2240
January.....	2250
February.....	2170
March.....	2230
April.....	2400
Average for year.....	2176
Percentage labor turnover $\frac{5020}{2176} = 231\%$	

Some complications arise in figuring turnover, as when the force is on the increase or decrease; but the above formula stands the test for typical cases. There is, indeed, some doubt whether the average number should be figured from those actually in attendance—as is done above—or from those on the payroll.

The careful analysis of turnover, not only for the business as a whole, but also by departments, is important, because it may help to locate bad management practises which can be corrected without difficulty. To illustrate: A concern learned that there was a high labor turnover in its power department. Detailed analysis of the situation developed the fact that the turnover was confined almost entirely to the coal handlers. Inquiry showed that these men were receiving 50 cents a week less than the coal handlers at the local railroad station. The wage was raised 50 cents, the turnover ceased, and the management was relieved of its worry about demurrage charges.

Not only is analysis by departments desirable, but also, sometimes, by sex, nationality, age, foremen, rooms, heaviness of work, amount of illumination or ventilation of work, place, dirtiness of job, method of

pay, amount of accident risk, anxiety, amount of other fatigue factors, distance of workers' homes, and so on.

Here is a case: A manufacturing concern had approximately 250 employees on its payroll each week for a year, but during the year employed 850 new men. About 200 employees stayed the year through.

It is evident that in this case the turnover occurred among about 50 employees, or only 20% of the force. In other words, 80% worked through the year, whereas 850 were employed to keep 50 men in certain parts of the business. There was a turnover of 340% for the whole enterprise but of 1,700% for certain phases of the business. This is one of the things that a study of turnover develops in most businesses. There are frequently one or two departments where turnover is much worse than in others and any efforts to reduce turnover can thus be started in the one or two worst places and results thereby accomplished quickly.

One big fault with most employment and turnover statistics is that they are too general and too vague. There is also a tendency on the part of some to go to the other extreme, and become so detailed that executives cannot give them the proper time or consideration. The employment department, without the active, cooperation of the chief executives, cannot accomplish much in reducing the labor turnover. One of the best methods of interesting executives, is to give them live, vital facts concerning the labor turnover; find out the weak spots, and concentrate on them; then by constant effort remedy them, one by one. If proper attention is given to the turnover in the worst departments or the worst jobs, the plant turnover takes care of itself. It is like everything else. It must be done, bit by bit, each step in its proper place.

## CHAPTER XVIII

### LABOR COSTS

*The part of labor costs in the general cost system, and ways to get labor costs and apportion them accurately to the products.*

AS he looked over his daily sales reports one November, the owner of a concern manufacturing a variety of articles mentally stood in front of a mirror and congratulated himself. Day after day the sales continued to pile up. It looked like the biggest month in the concern's history. And it *was* the biggest by a wide margin in point of sales volume.

Then came the monthly check-up audit—and when it was completed the manufacturer stopped shaking hands with himself. For when the report of the audit was laid on his desk, it showed that the business had suffered a net loss of \$5,000 over the same month of the previous year—a month in which gross sales had been 50% less.

There was much pushing of buzzers and hasty summoning of department heads to conference, together with a rigid rechecking of the audit. But the \$5,000 net loss would not be talked out of the record!

After the first shock of disagreeable surprise, the owner and his bookkeepers began a still hunt for the profit leak. And the big leak finally discovered was one that had been letting more or less profit slip away practically ever since the concern started in business. It arose, as you may already have suspected, in the lazy and faulty figuring of labor costs. In fact, it

might be said that the costs were hardly figured at all: they were achieved by prestidigitation.

Such leaks do occur in business. To understand just how the condition transpired in this business, it is necessary to detail some facts in the concern's history. The owner commenced business in a shoe box. In the early days the president and the office boy shared the light of the same window. For a starter, only three articles were manufactured. Labor costs—all workers were paid by the day—were figured by lumping and then apportioning them in equal amounts to the three articles manufactured. Now this happened to be a pretty good method, because the three articles took just about the same amount of labor to produce. The selling price arrived at turned out to be fairly profitable.

The business grew and most of the methods improved—but not so the cost system. It merely expanded. The labor costs were allocated in the same old way. The addition of a new product virtually meant nothing more than the addition of one more number to the labor cost divisor. With the inevitable disclosure of the facts, the strangest thing of all appeared to be that it had not happened years before. But there was a reason for the disclosure in this particular November. The reason was the concern's newest product, which was a mischief-maker and a profit-destroyer. On this article the big sales record that had caused the owner to become self-congratulatory had been hung up. And its price had been fixed on the old plan, under which it carried a labor charge of only about 60 cents. When the facts were chased down, it became evident that the product should have shouldered a labor charge three times as great, or about \$1.80. The bigger the sales, the bigger the loss!

Now you may suspect that this case is overdrawn. That is not so, for it is an exact experience; but it

may be true to say it is not entirely typical. It is, however, surprising what a number of concerns figure their labor costs by the simple and bankrupting rule of guess-and-pray.

The cost angles of labor have been pretty well threshed out. The common plan is to divide the costs into two classes: (1) direct or productive labor cost; and (2) indirect or non-productive labor cost. Direct labor is a charge against the job; indirect labor goes to the departmental overhead. The constant aim of the competent cost accountant is to regulate the indirect labor, so that it may be put upon the kinds of jobs that ought to carry it, instead of being roughly averaged, as in the instance first cited.

UNLOOKED-FOR DEVELOPMENTS USUALLY FOLLOW  
THE ADOPTION OF A COST SYSTEM

Getting the best out of labor is not a primary function of cost accounting, but it so happens that the comparisons which inevitably flow from the adoption of a cost system always direct executive attention to labor problems calling for remedy, if such there be. And almost without exception, cost installations are found to result eventually in putting workers on some basis that acts as an incentive to better production: that is, a basis where extra effort, either in the way of care, or of increased production, or both, is rewarded by additional payment, to the mutual advantage of the employer and the employee.

A common arrangement is to have an incentive plan of payment—piece-work or some modification thereof—for productive labor, and to charge the non-productive labor at hour or day rates. There is, however, no universally best plan, and it is altogether likely that even in the same concern different methods of allocating the labor costs will have to be used in different departments.

The setting of rates is of prime importance. Piece-work, as has already been suggested in the chapter on wage-payment plans, is considerably worse than useless if the rates are not carefully and equitably set. If the unit pay is too low, employees become dissatisfied; if it is too high, employees quickly know all about it, and instead of exerting themselves to gain the highest possible wages, they may devote inordinate effort to "getting away" with the high rate.

Whatever basis of payment is adopted, the direct labor charge goes to the operation. If piece-work is the plan, the amount to charge for labor is automatically fixed by the rate. Otherwise the time must actually be entered. In any case, the figuring of labor costs begins at the job. A time card which has given good results is reproduced in Figure 23. Each card covers a single job, and the form is designed for concerns in which the work comes in lots of fair size, so that not more than one or two cards are needed during a day. Of course, it is entirely possible to make divisions so that several lots may be covered by the same card. The form is immaterial, however, so long as it meets the conditions. The most valuable portion of the card is the division into hours and tenths of hours. When a workman starts he puts an "X" on the starting time, and when he finishes he puts an "O" in the proper square. If the workman or the timekeeper actually write in the starting and the finishing times themselves, accurate timekeeping will be difficult. One job does not always instantly follow another. There may be some waiting time between, and unless this waiting time, which is part of the operating overhead and should be so charged, appears in the records, the labor cost will not be exact. The next job will probably appear unduly costly, and wasted time will be concealed. The blank squares between the finish of one job and the start of the

"X" START										"O" FINISH										ARTICLE NO. _____ OPERATOR'S NO. _____		
MORNING	7	706	712	718	724	730	736	742	748	754	8	806	812	818	824	830	836	842	848	854	ARTICLE NAME _____	
	9	906	912	918	924	930	936	942	948	954											DEPARTMENT _____ DATE _____	
	10	1006	1012	1018	1024	1030	1036	1042	1048	1054											ORDER NO. _____	
	11	1106	1112	1118	1124	1130	1136	1142	1148	1154	12											OPERATION _____
																					QUANTITY STARTED _____	
AFTERNOON	1	106	112	118	124	130	136	142	148	154											QUANTITY FINISHED _____	
	2	206	212	218	224	230	236	242	248	254											QUANTITY SPOILED _____	
	3	306	312	318	324	330	336	342	348	354												
	4	406	412	418	424	430	436	442	448	454												
	5	506	512	518	524	530	536	542	548	554												
6	606	612	618	624	630	636	642	648	654	7												
TIME		RATE		WAGE		O. K.																
HOURS TENTHS						FOREMAN																

Figure 23: One employer finds this time card a helpful check on production costs. A separate card is used for each job. "X" in the proper square indicates when it was started and "O" when it was finished.

"X" Start										"O" Finish										Article No. _____	
min	7	706	712	718	724	730	736	742	748	754	8	806	812	818	824	830	836	842	848	854	Article Name _____
	9	906	912	918	924	930	936	942	948	954											Department _____
	10																				
1	2	3	4	5	11	7	8	9	10	11	12	13	14	15	16	17	18	19			
11	12	13	14	15	1	106	112	118	124	130	136	142	148	154		27	28	29			
21	22	23	24	25	2	27	28	29	30	31	32	33	34	35	36	37	38	39			
31	32	33	34	35	3	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
41	42	43	44	45	4	47	48	49	50	51	52	53	54	55	56	57	58	59			
51	52	53	54	55	5	57	58	59	60	61	62	63	64	65	66	67	68	69			
61	62	63	64	65	6	67	68	69	70	71	72	73	74	75	76	77	78	79			
71	72	73	74	75	7	77	78	79	80	81	82	83	84	85	86	87	88	89			
81	82	83	84	85	8	87	88	89	90	91	92	93	94	95	96	97	98	99			
91	92	93	94	95	9	97	98	99	100												
Rate 10 cents an Hour																					

Figure 24: Transparent tables such as this one are valuable time-savers in translating worker's time into money. A table is provided for each rate, and they are arranged on the principle of the slide rule.

[illegible]

**Figure 25:** By comparing actual time consumed on production, as shown by this record, with the standard for that operation, one employer is able to know the relative efficiency of all his operatives.

MACHINE OPERATION RECORD																				
Month of _____ 191__																				
Machine Number						Machine Number				Machine Number				Machine Number						
	Payroll	Operator		Helpers		Payroll	Operator		Helpers		Payroll	Operator		Helpers		Payroll	Operator		Helpers	
		Hrs.	Amt.	Hrs.	Amt.		Hrs.	Amt.	Hrs.	Amt.		Hrs.	Amt.	Hrs.	Amt.		Hrs.	Amt.	Hrs.	Amt.
T o t a l	No.					No.					No.					No.				
	No.					No.					No.					No.				
	No.					No.					No.					No.				
	No.					No.					No.					No.				
	No.					No.					No.					No.				
	No.					No.					No.					No.				
	No.					No.					No.					No.				
Total																				
Total Labor																				
Power																				
Fixed Charges																				
Repairs																				
Share of Department and General Expense																				
Total Actual Machine Cost																				
Actual Cost per Hour																				
Share of Department and General Expense (Aver.)																				
Total Average Machine Cost																				
Average Cost per Hour																				

next represent the idle hours consumed, and are posted to an idle-hour card.

In many concerns mechanical timekeepers, discussed in an earlier chapter, may be used to advantage.

The labor cards, however made up, go through the departments to the payroll clerk, who checks them up with the time clock and makes the necessary records for the payroll. Then the cards pass to the cost department, are entered on the proper cost sheets, and are filed as subsidiary records.

Convenient for translating men's time into dollars are the tables shown in Figure 24. The tables are of celluloid or other transparent material, one being provided for each rate, and are arranged on the principle of the slide rule to quicken calculations and to minimize error.

A useful check on the efficiency of the labor is the operation cost record shown in Figure 25. The actual time for each operation is here entered by the cost clerk, and the actual operating performance is compared with the standard times. The standard times, of course, are set by time studies expertly made. The relation of the actual and the standard times gives the efficiency percentages, and if these percentages are low, an investigation is in order. A low percentage of effectiveness may mean that the labor is at fault. At any rate, it usually reveals some cause for any discrepancy.

The foregoing labor records are part of a concern's cost system which revolves around a production unit or a labor dollar. But if, as in many plants, the machine hour basis is used, then it is the time of the machines which is important—the labor is incidental to the operation of these machines. Figure 26 groups the labor and machines and also provides for the final machine costs, spaces being provided for apportioning the fixed charges—power and other ex-

pense items—which the machine in question absorbs. The average of the machine performance, made up at the foot of the column, affords valuable comparisons.

The operations of all machines go to a summary (Figure 27) in which the actual hours used are compared with the available hours, and the percentages thus derived. The percentage of actual hours to available hours often is most surprising. Employers may be at a loss to decide whether they have been supporting the machines or the machines have been supporting them!

Non-productive labor, not being chargeable to a specific job, involves a record of only the starting and finishing times—usually the beginning and the close of the working day—and the charge to the proper department. If employees work continuously for one department, a card is scarcely necessary; if, however, they spend part of the day on overhead work for department X and the remainder of the day on overhead tasks chargeable to department Y, then a card should be made out in order that both departments X and Y may get the proper share of overhead.

Though indirect labor is not charged directly to a job, that is no reason why adequate wage incentives cannot be used on this class of work; they can, in fact, often be used to great advantage. Who knows, for example, just what he is getting out of his cleaners and shippers and truckers? In many concerns this type of labor is from 10% to 33% of the whole. One shipping and receiving gang, for example, did work so complex that it had not been considered possible to devise a wage incentive. The difficulty arose from the numerous sizes of packages and cases in which the finished product was shipped, the number and location of the finished stock warerooms and shipping platforms, and the variable distances which had to be covered by the truckers. There were approximately

**Figure 27: Many employers have found on investigation that machines could be used much more profitably by eliminating idle time. This form tells how the "available" and "active" hours compare.**

**Figure 28: Employers are realizing more and more every day the necessity of watching the seemingly unimportant details of production. This form provides one executive with pertinent cost data for each day.**

100 different sorts of packages to be handled between seven store rooms and nine shipping points. Some of the storage rooms were up four floors. As any of the finished articles might be stored in any of the ware-rooms and might have to be delivered to any of the shipping platforms, there were theoretically 6,300 possible combinations for which accurate rates must be set. Practically, however, it was found that the variations in the loading and unloading times were small. A very simple table of rates was devised to provide for the different distances of travel and the few variations in handling time. Virtually no additional effort was needed to keep the record of this group's work for payroll purposes and the net result of the new method was a reduction in the shipping labor cost of 30%.

THE NEW PLAN RESULTED IN A \$6,000  
SAVING ON ONE ITEM ALONE

The number of men required after the gang was put on piece-work was approximately one-half that necessary under the day-wage plan, and those retained in the crew were figured to earn an average of 22½ cents an hour on the piece basis as against 18 cents before the change was introduced—an increase of 25% in the average earnings per man. The company saved about \$6,000 a year on its shipping and receiving alone. Some way usually may be found to pay men better wages for better work, no matter what the task.

Labor cost figures preach no end of sermons to the man who understands them. The total payroll means little. A departmental payroll means more, but it also can be improved upon. Here is a hint of possibilities. Assume a departmental payroll summary in this form (the wage amounts are not intended to represent any actual condition, but merely indicate a method):

# DETERMINING LABOR COSTS

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Department	Amount	Workers
1	\$ 251.25	20
2	701.02	36
3	387.29	30
4	1,521.14	138
5	527.82	56
Total	<u>\$3,388.52</u>	<u>280</u>

Average wages .....\$12.10

To give further necessary information, the payroll summary and analysis might be along these lines:

Department	Total Pay	Direct Labor	Indirect Labor	Hours	Average Rate
1	\$ 251.25	\$ 200.79	\$ 50.46	1,005.0	\$0.25
2	701.02	690.12	10.90	2,002.9	.35
3	387.29	362.41	24.88	1,683.8	.23
4	1,521.14	1,318.77	202.37	7,605.7	.20
5	527.82	527.82	.....	3,104.8	.17
Total	<u>\$3,388.52</u>	<u>\$3,099.91</u>	<u>\$288.61</u>	<u>15,402.2</u>	<u>\$0.24</u>

It is simple enough, after setting up the payroll summary, to give it lively significance by adopting it as a means of controlling labor costs in connection with production. Every cost department receives production reports from the various departments, but often they are used only to determine monthly output. By gathering the figures from these reports weekly, it is comparatively easy to set up a weekly production record similar to this one:

Department	Quantity	Unit
1	20,000	lbs.
2	10,000	lbs.
3	13,750	yards
4	2,050	dozen
5	2,225	dozen

If the payroll summary is then compared with the production report, the labor cost per unit in each department is had. Comparing each week with the

preceding week or other desirable periods, immediately locates any tendency in the labor cost per unit to depart from the normal. This method is of course possible only where a unit can be provided. If no unit of output can be arranged, then an efficiency percentage of the labor may instead be used. Efficiency ratings, as previously stated, are based on standard times found through time study.

WHAT THE RATIO OF PRODUCTIVE LABOR  
TO THE TOTAL PAYROLL MEANS

The percentage which productive labor bears to the total payroll is a barometer, thermometer, and fire alarm to the whole works. It tells when plant efficiency is improving or going to the bad; also when more is being spent on maintenance, experiments and the like, than the plant will stand.

Where any considerable part of productive labor is day-work, the manufacturer faces a real difficulty, not insurmountable but requiring special treatment and special expense. The real remedy is often to eliminate the day-work as far as possible. The employees then receive higher wages, the incentive to do more is present, and as a consequence the work costs less.

"Accountants," says one employer, "often make the error of summarizing and presenting totals of various classes of manufacturing expense, including non-productive labor, without showing the non-productive labor separately. This may be correct enough accounting, but it is poor operating. Distribution provides a way to trace leaks straight back to their source and before even a week's time is lost, and it is an absolute necessity for good operating control as well as for cost purposes."

Another employer says emphatically: "No man can afford to do business unless he has some formula that will give him the results of labor. It is a founda-

tion principle—to know labor cost down to its finest detail—because this enters most largely in the cost of most production. In our own business the materials used, such as iron, for instance, do not vary much, and if iron advances \$4 a ton, it is only one-fifth of a cent a pound, and the item is small compared to a 5% or 6% increase in the cost of labor.”

The extent to which the labor cost is subdivided must depend, of course, on common sense and the amount that the time and money thus spent will bring back in the way of results. The figures of themselves are of no account. They must have executive attention and action after they are prepared.

The following monthly detailed analysis of labor cost per unit of product, is the type of report made up for the owner of a small blast furnace. With the labor cost thus finely subdivided, it is easy to see how comparison of the analyses from month to month enables the owner of the business not only to know whether his labor cost is too high, but also to put an unerring finger on weak spots—

Occupation	Amount
Carpenter.....	\$0.0171
Carpenter's helper.....	.0063
Machinist.....	.0254
Machinist's helper.....	.0128
Blacksmith.....	.0132
Blacksmith's helper.....	.0079
Oilman.....	.0071
Foreman.....	.0751
Engineers (blowing).....	.0212
Engineers (locomotive).....	.0202
Switchman.....	.0171
Water tenders.....	.0199
Fireman.....	.0172
Storeman.....	.0200
Keepers.....	.0224
Helpers, first.....	.0199
Helpers, second.....	.0384

Occupation	Amount
Iron carriers.....	.0992
Scrappers.....	.0178
Laborers (C. H.).....	.0403
Top fillers.....	.0199
Top fillers' helpers.....	.0192
Scaleman.....	.0192
Fillers.....	.1069
Boss (S. H.).....	.0101
Ore breakers.....	.0171
Laborers (S. H.).....	.0243
Cinderman.....	.0171
Trackmen.....	.0229
Laborers (C. Y.).....	.0256
Iron loaders.....	.0464
Laborers (I. Y.).....	.0092
Boss unloader.....	.0092
Coke unloaders.....	.0413
Coal unloaders.....	.0046
Ore unloaders.....	.0096
Stone and marble unloaders.....	.0004
Crusherman.....	.0402
Horse hire.....	.0211
Horse hire helper.....	.0066
Moulder.....	.0108
Moving chills.....	.0202
Loading chills.....	.0025
Oiling coal.....	.0071
Repairing cars.....	.0040
Digging loam.....	.0070
Cleaning up.....	.0119
Cleaning boilers.....	.0021
Total.....	\$1.0492

One characteristic which labor costs share with costs of all types is that, when they become ancient history, they are valuable mementos of other days, but scarcely helpful as guides to management. A Cleveland employer, to secure his labor costs in time, has banished red tape. He puts his plan as follows:

"It's mighty hard to make a strong point with a foreman on cost figures a week or two old. I have

decided on a few simple facts that I need to know. I get those regularly, and let all the other facts that are not of instant importance come through when the cost department gets round to them in regular order. Take a simple record I have" (Figure 28) "of which I give one copy each month to the man in charge of the job, and another copy to the cost man.

"Now let me show with an example how my plan works. Assume that one of the jobs I wish to watch is the assembly of a motor. I instruct the foreman to place each day the total number of hours worked by all the men in the department in the column headed 'total hours.' In the column marked 'units delivered' he is to place the number of completely finished motors. The cost man calls on the foreman daily and copies the record upon the duplicate sheet. Dividing the first column by the second column gives the hours per unit. I get the result.

"In computation, each day's hours and units produced are totaled to the preceding days, so that a running total and a running average are obtained. When the end of the month is reached, new sheets are issued and a new average is started.

"Thus I have for every day in the month the actual number of hours per unit from the first day of the month to date.

"Here is how the plan works out in detail. We furnish 10, 20, or 50 of these sheets to the various foremen. The cost clerk makes the round of the plant once a day, at a specified time when the foremen have been instructed to have the figures ready for him.

"He carries a little loose-leaf book with the duplicate sheets. He copies the data. In a half-hour he is back at his desk. In another half-hour he has performed his elementary arithmetic and obtained his averages. A slide rule here is helpful. He places his little volume on my desk at 8 o'clock every morning

and then checks his records with the time cards. I open the book and have the drop on the 50 or so most important operations in my plant."

There are plenty of other plans similar to this in purpose, that keep the cobwebs out of labor cost figures, and make them real management assistants. Unless they are at least that, they are useless. The business man who does not have accurate labor costs, but muddles along in a maze of faulty figures, usually is treading on the thinnest ice.

## CHAPTER XIX

### ACCOUNTING FOR NON-PRODUCTIVE LABOR

*This is a method used to standardize non-productive labor, and keep the cost as low as possible—used at the American Optical Company by E. H. Bickley, who describes it here.*

**I**T is difficult to find a simple method of standardizing non-productive labor. The controlling factors are vague and not amenable to analysis. The plan I am going to tell about here does not set forth an added theory or a new consideration of the subject, but is a practical method which has been standardized for certain conditions and which I have actually used advantageously in my work.

The control of departments having productive work done on piece-work, task, bonus, or lot system, resolves itself into a proper consideration of the rates under which the production is accomplished, and the cost of the supervision or non-productive labor. Just what this latter cost should be, what it is, and how it should be controlled, is the subject here. The ideal control should be simple in information required, easy to handle, and flexible. The rates and method of payment of productive workers depend upon conditions and operations, and the determination of these factors should be the duty of an operation-study and rate-setting department, but the non-productive labor problem in an organization can be handled with more uniformity, with little additional work, by this method.

The value of this system is based upon the assumption: "In every department or factory a fixed relation exists between the required non-productive labor and the productive labor hours, or production." Just what this relation is and how it may be used is the first consideration. The truth of the above assumption and how closely it may be relied upon is the second consideration.

Assuming there is a fixed relation between non-productive labor and productive labor for a particular case, to find this relation, we must have recourse to records of production in productive units or productive hours, and non-productive labor in dollars and cents simultaneously over consecutive periods. The production should be figured in production units if possible, the value of the parts in production units being assigned with regard to the number of non-productive hours required in its completion rather than the productive hours or value of the part. This is an important point, the oversight of which might lead the figures astray. Where only one style of part is manufactured, the "productive hours" may be used; but where many styles are produced the problem becomes more complex, and the required inspection, trucking, repairs, supervision, receipt, shipment, packing, tools, difficulty of working, and so forth, must be considered in assigning the value, in production units to the part.

Having the required record (Figure 29) it is necessary next to establish the relation. From consideration or trial of the particular case it is decided whether "production units" or "productive hours" will make the best basis. The relation between the "production units" or "productive hours" and "non-productive labor" is plotted on cross-section paper, using "non-productive labor" on the vertical axis, and "production units" or "productive hours" on the horizontal axis, numbering the points consecutively as they are entered. From a

study of the payroll the "zero production" figure is determined in the following manner: Assume that the plant is shut down, to start again in one month; then to build up production gradually, what could the non-productive figure be cut to? This minimum figure forms the lowest point on the diagram. Drawing a line through this point and the best records, gives the characteristic line of the department. The productive capacity is checked against this line weekly,

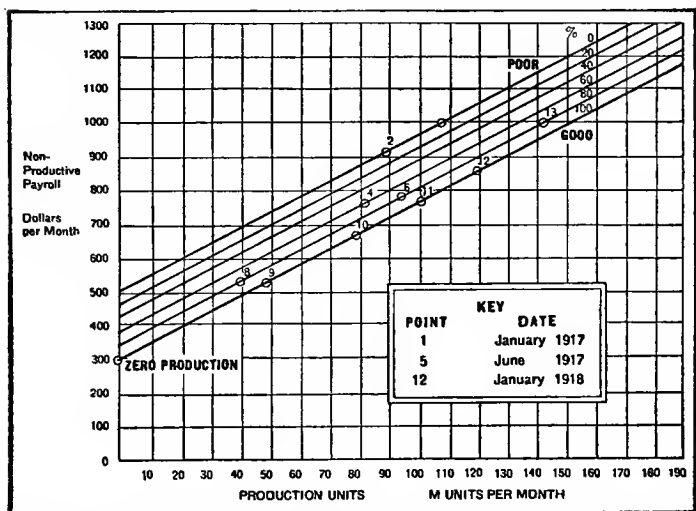


Figure 29: With this chart, the relative part which non-productive labor plays is readily seen. In fact, the chart may be used to indicate the ability of the department manager, as explained in this chapter.

and the point marked in as shown. If the point lies above the line, an unsatisfactory condition is indicated; if below, a new record is made, and a new line may be drawn.

Unsatisfactory conditions occur largely thus:

1. Increased inspection
2. Wrong assignment of duties

3. Too much clerical work
4. Too much supervision
5. Poor tool work
6. Misdirected efforts
7. Increases of pay
8. Interruptions of work
9. Temporary loss of production.

It is possible through rearrangement of duties, and a study of the above actual conditions, to keep the non-productive labor charge at all time near the line and occasionally below. By ruling arbitrary lines similar to the lighter lines on the chart (starting with the poorest record as O) the efficiency of the foreman or manager of the department may be computed. The average percentage for the year may be a factor in determining successful management.

Now that we have considered the relation between non-productive labor and productive labor hours, or production units, it remains to consider the truth of our primary assumption. Non-productive labor can be classed under the following groups:

#### Group A

1. Building repairs, renewals, maintenance
2. Development of ideas, experimental
3. Approval of operations
4. General supervision, labor and equipment
5. Material control
6. Investigation of new equipment
7. Planning work

#### Group B

1. Care of material in process
2. Quality, testing, approval of materials
3. Material records
4. Erection, location and revision of equipment
5. Spares, and care of equipment
6. Employment and discharging labor
7. Department costs, welfare, and safety first

8. Timekeeping and records of work
9. Make ready for operators
10. Instruction of operators

Group C

1. Packing, shipping, delivery of materials
2. Trucking transportation
3. Assignment of work
4. Wage payment

Group A is practically independent of production. Group B is neither directly proportional to production nor a fixed charge, but composed of two elements, a fixed charge plus a proportional charge. Group C is proportional to production entirely.

The fixed portion of Group B may be added to Group A, and the variable portion to Group C. Or the total non-productive labor charges may be resolved into a fixed charge and a proportional charge. The fixed charge is determined by the "zero" production figure mentioned above, and the proportional charge is indicated by the slanting line.

We find thus that our primary assumption is correct. Conditions have been standardized and a scale of measurement for these conditions laid down.

## CHAPTER XX

### A MEASURE OF LABOR EFFICIENCY

*This chapter—by E. L. Ashley, of the Business Service Corporation of America—describes a method by which jobs involving different tasks, different wage rates, and different output for each group, can be compared.*

**T**HE solution of the problem of determining the individual efficiency of employees depends upon the following variables:

1. The amount of wages received
2. The assigned task
3. The amount of unit production or output.

If each employee in any organization were to receive the same hourly wages, produce the same quantity per hour, and was assigned the same task, it would be a comparatively simple matter to arrive at their relative efficiencies. In such a case, the matter of wages and task would be eliminated, leaving the unit production or output as the relative index of the efficiency attained by each employee.

This, of course, is never the case in any organization. The condition that applies is more nearly as follows:

A receives \$12 per week

B receives \$15 per week

A's assigned task is 200 per hour

B's assigned task is 75 per hour

A's output is 244.8 per hour

B's output is 57.8 per hour

A's work consists in pricing individual items upon receipt of an order.

B's work consists of packing orders containing half a dozen items, such as small tools, implements, repair parts, and so forth.

The efficiency of A and B in absolute percentages, taking into account the three variables referred to in the first paragraph of this chapter, is the information which the superintendent of a division requires, and a summary of this information as applied to all divisions is essential for the general superintendent.

In the first case the superintendent can tell which employees in his division are holding down the average efficiency, while the general superintendent can just as easily tell which of his division superintendents are holding down the general average. This is not a small problem for a concern with over 30 divisions and having a large number of employees.

In the solution of this problem, the first step consists in installing and keeping up individual output and time records. These are carefully analyzed, methods are studied, and in many cases time studies are made in order to determine the unit task varying with the wages; or, a standard cost is obtained for each measurable activity.

The second step consists in determining some simple and accurate method for arriving at the value of these output records, as they reflect the increase and decrease of the efficiency of the individual employee.

Take the above case of A and B:

A produced 22.4% more than the requirements.  
B produced 23% less than the requirements.

The cost of A's output (\$12 per week of 44 hours) is \$0.114 per 100. The cost of B's output (\$15 per week of 44 hours) is \$0.590 per 100.

If A's output task is 100 units or one unit for every two items, the output will be 122.4 units. The per-

centage of increased output will still be the same, that is, 22.4%. If B's output task is 100 units or 1 unit for every  $\frac{3}{4}$  items, the output will be 77 units. The percentage of decreased output will still be the same, that is, 23%.

In each and any case, actual output can be compared if this output is multiplied by a factor derived by dividing 100 by the task, or  $100 \div T = \text{factor}$ . Any base amount may be used, of course, but in the particular case under consideration 100 was the number taken. The percentage of the respective outputs on this basis does not change.

As will be self-evident from the above, the actual unit cost does not show comparatively, nor does it express the percentage of individual efficiency. From the above cost figures of \$0.114 and \$0.590 per 100, A's efficiency is not 5.18 times that of B.

However, on the basis of the number of units produced, remembering that A produced 122.4 units and B produced 77 units, the relative cost per 100 unit will be: A=\$0.223. B=\$0.443. These figures are comparable and it is seen that A is about twice as efficient as B. By means of the relative cost, relative efficiency can be obtained. Actual efficiency will next be determined.

If the tasks have been properly fixed, we can determine a relative cost which will represent 100% efficiency. This is a matter for judgment in the plant where this plan is used. It is evident that the output task is not 100% efficient; since that, like the "probable error," is as likely to be exceeded as not, and we know from experience that employees do not, even for 50% of the time, exceed 100% efficiency.

Based upon the best judgment available, and comparing with a few highly efficient employees, a relative cost of 10 cents per 100 was set as that relative cost which represented 100% efficiency.

WEEKLY EFFICIENCY REPORT										
For General Superintendent							WEEK ENDING June 14			
Relative Standing	DIVISION	Number of Employees	Number Receiving Bonus	Average Amount of Bonus	Number of Employees Deficient	Average Amount of Deficiency	Average % of Output to Task	EFFICIENCY		
								This Week	Last Week	This Week Last Year
1	137	58	34	\$4.50	8	\$ .97	185.0	76.0	73.3	63.6
2	107	62	42	2.89	12	1.03	173.0	66.6	66.8	31.9
3	145	21	17	4.38	1	.88	153.0	51.6	63.8	44.7
4	117	31	21	2.67	10	.88	142.0	47.3	50.5	41.8
5	102	64	47	3.47	8	1.47	140.7	46.8	78.5	47.8
6	118	27	19	2.59	5	.62	137.9	48.3	82.6	26.9
7	121	72	57	2.37	10	1.36	136.7	48.1	43.6	30.3
8	131	46	16	2.18	13	1.66	116.5	39.7	44.8	35.4
9	105	39	13	4.53	0	0	109.7	37.4	48.7	29.8
10	123	29	0	3.63	0	.84	100.0	34.1	39.4	28.6
11	130	19	6		0		93.8	36.3	36.7	25.7
12										
20										
21										
22										
23										
Average										
<p>The above figures are taken from a weekly summary of the individual employee's Cost and Efficiency Record, a copy of which is sent to Division Superintendent.</p> <p>The Efficiency figure is the % of the Average Relative Cost per 100 to \$0.10 per 100. This \$0.10 per 100 has been set as that Relative Unit Cost which represents an efficiency of 100%.</p> <p>Remarks:</p>										

Figure 30: This report gives the general superintendent a good indication of what the different divisions are doing. If a division head needs the assistance of his chief, this chart is pretty likely to indicate it.

WEEKLY COST AND EFFICIENCY SUMMARY										
DIVISION 123			WEEK ENDING June 14							
Name	Activity	Sub-Div. No.	No. Hours Worked	Wages Per Hour	Output Task Per Hour 2	Actual Output Per Hour 3	Actual Cost Per 100 4	% of Output to Task 5	Relative Cost Per 100 6	% of Efficiency 7
Adams	Printer	10	43.0	.256	35	63.3	\$.404	101.0	\$.141	70.8
Gall	"	10	34.75	.302	150	208.1	.145	139.0	.217	46.2
Wach	"	12	43.0	.328	200	255.1	.122	133.0	.244	41.0
Hamm	"	14	43.0	.302	150	108.0	.279	72.0	.420	23.6
Gard	"	13	16.67	.280	33	55.6	.502	160.0	.175	37.2
Werner	"	12	43.0	.260	74	92.6	.303	125.0	.223	44.2
Ray	"	13	41.5	.280	83	130.0	.186	181.0	.154	66.8
Stacy	"	16	27.5	.280	74	115.0	.243	156.0	.178	36.8
Wall	"	10	43.0	.302	46	41.4	.798	92.0	.328	30.4
*Fowork	Checker	10	44.0	.368	63	39.7	1.080	95.0	.702	14.3
Donald	"	10	16.67	.321	80	35.7	.910	71.3	.456	21.9
*Homer	"	12	35.3	.406	70	47.3	.860	67.8	.602	18.0
Ball	"	14	43.0	.302	150	104.3	.290	80.6	.377	25.8
Smith	"	13	43.0	.302	110	99.8	.303	80.6	.333	30.0
Schwab	"	13	43.0	.302	110	161.4	.187	147.0	.205	46.8
Hurry	"	13	36.6	.280	100	72.4	.387	72.4	.385	26.0
Brink	Wrapper	14	36.0	.280	40	49.3	.568	124.0	.225	44.4
Wain	"	14	46.0	.341	50	51.0	.897	104.0	.327	30.6
Booth	"	13	43.0	.302	85	37.2	.613	87.3	.527	19.0
*Donald	"	13	26.33	.325	70	36.0	.903	31.4	.653	13.6
Arndt	"	16	36.8	.302	78	80.0	.604	64.2	.471	21.3
Kuhn	"	16	43.0	.280	78	52.1	.537	72.3	.387	25.9
Becker	"	16	41.6	.280	90	128.6	.221	141.0	.198	50.2
Cathy	"	10	34.0	.341	58	41.9	.813	78.1	.448	28.1
Denny	Packer	10	40.0	.325	80	30.3	.646	74.6	.423	23.6
Malone	"	12	44.0	.302	43	23.8	1.270	88.8	.573	17.6
*Lehman	"	12	16.0	.390	48	21.1	1.400	47.0	.628	13.9
Saporita	"	14	8.0	.280	60	62.6	.446	104.0	.269	37.2
Irwin	"	13	8.0	.341	63	63.6	.326	68.6	.486	30.1
Average								100.0		34.1
<p>Remarks: Efficiency is 4.7% better than last week.</p> <p>The four employees with stars opposite their names have been taken off these activities. This should help rating for next week as they all have ratings less than 20%.</p>										

Figure 31: A careful study of costs and results for each division is afforded by this record. Weak spots inevitably show up, and having been located, their elimination is then a comparatively simple task.

On the basis of using 10 cents per 100 as 100% efficiency, from the above, the efficiencies of A and B are:  $A=44.8\%$ ,  $B=22.5\%$ . The relation still exists, showing that A is twice as efficient as B, and the relation as expressed shows that the individual efficiency varies inversely as the relative cost.

The third step is the design of the forms necessary for the compilation of these figures for the benefit of the division and general superintendents.

On page 247, the form "Weekly Cost and Efficiency Summary," made up by the department of efficiency, shows the efficiency of every employee on record, and the average efficiency for the entire division.

It will be noted that beside representing the number of units produced by A and B, these same figures—122.4 for A and 77 for B—also represent the "Percentage of Output to Task." They are accordingly shown under this heading as being of more value than merely as "Number of Units Produced."

Two copies of this report are made each week for each division. One is kept in the office of the department of efficiency, the other being sent to the division superintendent of the division to which it applies. Under "Remarks" and on the opposite side of the sheet will be shown the causes for fluctuation in efficiency from week to week, as the department of efficiency is able to ascertain. These remarks allow for the introduction of excellent constructive advice to the superintendent, which may save him being "called on the carpet" by the general superintendent.

Since each division having measurable activities can be put on the same basis, it is only a matter of summarizing the information from the different divisions, as shown in Figure 31, and combining the same on a form such as the one shown in Figure 30. "Weekly Efficiency Report." This is a report to be sent to the office of the general superintendent showing him

the percentage of efficiency of each division; or may serve as a report giving him control over the operating functions in each of his departments.

As a means for determining the efficiency of employees working on the same activities, and as an average for the entire division, the executives, through this plan, have a means for control which is not only accurate, but effective. Correct individual efficiency records have another important advantage. Through them, the management is enabled to follow the most satisfactory method in the division of a portion of the profits to their employees based upon the individual efforts of such employees in contributing to production.

As a principle, employees do not look with favor upon the plan of setting aside a lump sum to be distributed equally among the employees or to be distributed pro rata upon the base wages they are paid. The employee who works hard and accomplishes more than his neighbor, who produces but a fraction, and that fraction, poorly, cannot feel that justice and fair dealing prevail, if both receive the same amount in the distribution of the wages.

When an employee knows that, to receive additional compensation, the figures on his record—kept correctly and up to date—must show that he is entitled to this addition, he is going to see that he is supplied with work sufficient to keep his unit output up to that point where the maximum additional compensation will be obtained.



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